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# ASTHENOLOGY:

OR,

THE ART OF PRESERVING

*FEEBLE LIFE;*

AND OF SUPPORTING THE CONSTITUTION UNDER THE INFLUENCE

OF

INCURABLE DISEASES.

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BY

CHRISTIAN AUGUSTUS STRUVE, M. D.

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*TRANSLATED FROM THE GERMAN*

BY

WILLIAM JOHNSTON.

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## ADVERTISEMENT.

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## P R E F A C E.

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**A** TREATISE on Asthenology, at the present period, may not be improper, either in a moral or physical view, especially as the evil (I here speak of it in a physical sense) has often made such progress, that nothing can be done but to prevent it from acquiring a superiority, and to prolong, at least for a certain period, that life which we are not able to maintain. Such an art, whether we call it astheno-macrobiotic or asthenocomic, the art of prolonging life, or the art of maintaining feeble life, must, under these circumstances, be highly acceptable.

This work, therefore, the result of several years study, is destined to supply in some measure the want occasioned by the evil to which I allude.

Such a work, partly on account of the state of the art, and partly on account of the author's situation, can be nothing but an essay, and a first essay; as hitherto we have had only individual fragments on the art of maintaining feeble life; for no one has ever yet written on the subject in its full extent.

As

As the author is well aware what the public require, and what they have a right to expect in a work of this kind, he has endeavoured, as far as his knowledge and his talents would allow, to gratify their wishes. His situation, however, excluded him from that leisure necessary to give it connection, and to reduce it into a proper systematic form.

Those acquainted with the business of a physician, must know how many impediments may come in the way to prevent him from fulfilling the just expectation of his readers. A theorist, in the enjoyment of leisure, might have carried it to greater perfection; but whether such a work may not have gained essential advantages in the hands of a practical physician, must be left to the public to determine.

In the present period, it seems to be criminal for a man to pursue his own course, and not to range himself on the side of some party\*; but it may be asked whether this intolerance and despotism over the thoughts, instead of promoting the cause of science, does not rather subject the mind to the most slavish trammels. The author professes the utmost respect for the Scots system, which is a work of great genius; and he cannot help admiring, in particular, the theoretic part†; but he is neither a Brunonian nor an  
Anti-

\* It is distressing to read, in many of our critical journals, the severe, and in part insulting attacks made against men of the greatest merit, where persons and things are confounded. To praise or to condemn Brown is equally dangerous.

† After I had completed the first and second part of this work, I obtained a copy of Roschlaub's Pathogeny, of which two volumes have appeared; and it gives me pleasure to observe that he has been conducted, though by a different way, to a great many results which coincide with mine.

Anti-Brunonian, because he sees no necessity for adopting either side, unless he chose to belie his own conviction. He found something good in the work throughout; and he considered it his duty to make use of it.

Had this work been kept back ten or twenty years, it might have obtained a quite different form. It might have gained in some respects, and lost in others. But *ars longa vita brevis*; the author therefore thought proper to give it to the public such as it is. He wrote for his own instruction; and he now submits the result of his labour to the unprejudiced judgment of his cotemporaries.

If the theoretic part should appear to some readers to contain little interesting, they will perhaps find more satisfaction in the second or practical part.

The whole will be concluded by a third part, containing the treatment of some incurable or obstinate diseases, which relate to the maintaining of feeble life.

C. A. STRUVE.

Gorlitz, Dec. 1798.



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## INTRODUCTION.

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### § 1.

**T**HE desire of life is not extinguished by the utmost degree of human misery; sufferings continued for years, diseases, and pain. It continually supports itself by hope; and, though often deceived in the expectation of relief, still flatters itself that the best consequences will ensue. The wish for continuing our existence is kept alive amidst the severest oppression of poverty, if only a distant ray of hope smile upon us. A disgust of life is rather a transitory state, from which the child of misfortune emerges as soon as a few painless moments restore him to the use of reason.

### § 2.

Since the attachment to life is so strong, the means of prolonging its existence have, at all times, been received by mankind with the utmost welcome; though they have not always been pleased with the sacrifices necessary for this important object.

### § 3.

The grounds for prolonging life, and guarding against the existence of disease, must be laid, during the period of sound health, by a suitable conduct. This is often neglected; and man, by dissipation,  
B deviations

deviations from those rules necessary to promote health, or inattention, paves the way for a melancholy and wretched existence; so that a great part of his life is a chronic disease. By these means his days are shortened, and the frail thread of life is in danger of being broken by the first cause that occurs. The sick, sickly, or feeble patient, beholds death approaching, yet wishes—who can blame him?—notwithstanding his sufferings, to see it removed from him as far as possible; and is still attached to an existence which costs him so many moments of bitterness. The wish that the boundary of life may be extended to the greatest possible distance, is connected with the sweetest hope, which insinuates itself so readily into the heart, that his disease will in time be removed, and that he may be restored to the full enjoyment of health. How acceptable to such a child of misfortune must be the means of prolonging feeble life!

#### § 4.

These means are the subject of the present work, which comprehends, under the term *ASTHENOLOGY*, the state of valetudinarians, and the method of maintaining feeble life.

#### § 5.

*ASTHENOLOGY*, in regard to its theory, and the application of it as an art to maintain feeble life, is distinguished not only from the macrobiotic art, or that of prolonging human life, of which it forms a subordinate part (*asthenomacrobiotic*), but also from the antiasthenic art of healing, or *asthenotherapia*, which is employed in removing weakness, and restoring the lost powers and health. The art of maintaining feeble

§ life

life leaves to these the direct strengthening method; and has for its object merely to preserve and prolong the existence. It extends its aim farther than the direct art of healing, and is therefore active, when the common physician deserts the patient, and declares his malady to be incurable. In regard to its object, the maintaining and prolonging life in the asthenic state, it comes within the boundaries of both sciences, and endeavours to maintain feeble life, rescued from apparent death. It tries also how far it is possible to operate a direct cure in cases of asthenia; and when no radical method of cure is applicable, relieves by the palliative method the most urgent symptoms, and exerts itself to prolong, for a certain period, that life which it is not able to preserve.

## § 6.

In common language something of the like kind is well known. We often hear that the physician has relieved the patient, or that the application of certain means will retard the progress of death. People, in general, are pleased also with that physician, who, after declaring his patient is incurable, says that he will now do something to preserve him in life a little longer. All this is true. Stoll says, speaking of the treatment of certain malignant fevers: "It is fortunate enough if the disease be not rendered worse, and if means be found to let it linger itself away\*." This indeed does not agree with the practice of many modern physicians, who, believing themselves masters over nature, incessantly attack their patient with the utmost violence, till they at length hurry him to his grave.

\* *Auszug aus Stoll Heilungsmethode.* Part II. p. 304.

## § 7.

No author has ever yet treated systematically on the means necessary for maintaining feeble life. Except single essays, we have no work of the kind \*; and yet this art deserves as much as the macrobiotic to be treated in a scientific manner.

## § 8.

Few instances of asthenic life prolonged by the application of proper means occur to us, though cases, where persons, notwithstanding the utmost weakness and consumption, live a long time, and where others dying, lie several days in the feebleness of death, are not uncommon. The instance of Democritus, who in order that he might see the olympic games prolonged his life two days, by the vapour of hot bread, is very remarkable.

HERODICUS, who obliged his patients to exercise themselves by walking; to submit their bodies to friction, and to overcome disease by exerting the muscular powers, had the good fortune to prolong many years, by his method, the lives of several valetudinarians\*.

In general, however, men expect too much from nature, and dream of growing young, instead of being contented with a respite from death, and with prolonging their life for a certain period.

\* In Hecker's *Handbuch der Allgm. Heilkunde*, we find only in four paragraphs: LVIII. *In incurable diseases, how to maintain the still remaining feeble life.* The author says, in the preface, that the subject of this chapter has not been treated in any elementary work on medicine. Stubbendorf. *Dissert. de vita in morbis prorsus insanabilibus praelongenda.* Goett. 1781. 4 I have never seen.

† Hufeland's *Art of Prolonging Life*, English edition, p. 4.



## § 9.

The GEROCOMIC of GALEN, the healing art as applicable to old age, comprehends a part of the art of maintaining feeble life. The object of it is to counteract the increasing hardness and rigidity of the vessels; to promote nourishment, and to favour, as far as possible, the restoration of the lost powers. Collections, highly valuable in regard to this art, may be found in Lord BACON's treatise on life and death; and particularly in HUFELAND's classic work on *Prolonging human Life*.

To this belongs also the ANATHREPSIS or ANALEPTIC (*αναθρεπτική αναληπτική*) of GALEN: The art of restoring debilitated patients, and of curing diseases by nourishing and strengthening means.

## § 10.

ASTHENOLOGY comprehends in the theoretic part, the origin and causes of the asthenic state of human life; both in regard to disposition for disease, and to diseases themselves; and is founded on the vital principle. In the practical part it contains the means to be employed for maintaining life in the asthenic state, whether the diseases be curable or have been declared incurable by the physician. It contents itself with prolonging human existence to as extensive a period as possible, and is the direct enemy of death.

The first part may be properly comprehended under the term ASTHENOGENY: The doctrine of the causes of Feebleness. The second contains the practical application of this doctrine.

## § 11.

The idea of FEEBLENESS is relative. In general we mean by feebleness, when the vital operations are not performed in a proper manner: when the mind is deprived of its cheerfulness and vivacity; when the limbs have lost their agility; when the powers of the digestive faculty have become weak; &c. But such symptoms are observed where life is in full vigour; in the soundest and most robust men, after fatigue or excessive labour.

The idea of Asthenia may be deduced from comparing it with the idea of strength: after this comparison, some certain conclusion may be formed respecting it in regard to state and circumstances; individual bodily constitution and external influence. The idea of the vital principle must be our guide. (§ 97.)

## § 12.

The doctrine of the vital power, or, to speak more correctly, of the vital principle, is the basis of the art of maintaining feeble life (*Asthenomacrobiotic.*) Many important results are to be expected from studying the modern researches on this subject; and asthenology is particularly indebted to the Brunonian system, which has elucidated these important researches—a system from which so many reflecting minds of the present period have derived much light.\* No period, indeed, has produced so many helps as the present,

\* That this is meant to be understood conditionally, will appear from various passages in the following work. The mischief which arises in practice from confounding Brown's *Sthenia* and *Asthenia*, is evident.

to promote the improvement of the healing art ; and never were such noble prospects opened before it. The idea that *man is an organized animated being, both as a whole and in single parts*, which is now applied more than ever to the healing art, when purified from sthleanism as well as from coarse materialism, conducts to the most beneficial results. We can apply a suitable remedy to human infirmities, only when we have become thoroughly acquainted with man. Our expectation is still farther raised when we place together the researches of an Arneemann, Roose, Hufeland, Brandis, von Humbold, respecting the vital power or the vital principle, and Reil's respecting organization ; compare them with the Scotch system, and, under the guidance of a Röschlaub, who has commented on it with so much acuteness, deduce from it useful results.

## § 13.

The idea of the CURABLENESS OR INCURABLENESS of a disease, is, in general, very indefinite, and requires great limitation. Many diseases which by physicians are commonly declared to be incurable, because they know no farther remedies for them, or because the remedies which they imagine effectual, do not answer their expectation, are often cured by the judicious physician, who confides in nature. The ancients accounted various diseases, such as dropsy of the head, lameness of the lower limbs, distorted feet &c. incurable ; of which, however, our more improved art can exhibit, at least, single instances of cure. As long as the principal organs of life have not materially suffered, a disease cannot be pronounced desperate. A great deal here depends on the nature of the injury

which these organs have sustained. The most incurable maladies are those which arise from a mechanical wasting of the internal organs, always increasing, such as suppuration of the lungs in *phtisis purulenta*. But sometimes considerable parts of a principal organ of life, such as the brain or lungs, may be injured, and life still continue a long time; while, in other cases, it maintains itself for a much shorter period, or disappears in a moment, though the least apparent injury does not exist in any of the organs. Something also depends on the loss of vital susceptibility in an organ: the greater this loss, the shorter will be the duration of life. Lameness affords us an instance in individual parts of what we observe in the general organization, in many cases of death. The real loss of vital susceptibility is incurable; if complete it is death; if incomplete it is disease: but disease incurable.

It is sometimes difficult to distinguish the actual loss of the vital principle from mere oppression of its activity. People, therefore, should not be too rash to pronounce a disease incurable. There is reason to hope, that by the progressive improvement of science, the number of the incurable diseases, as they are called, which hitherto, to the great misfortune of suffering humanity, have existed rather in idea than in reality, will more and more decrease.

#### § 14.

There are some diseases in which the whole care of the physician must be to check the progress of the evil: to maintain, and, if possible, to spare the few powers that are left, when no direct method of healing can be employed, by which means he acts rather as

an observer of nature than a physician. Every thing almost in these diseases depends on a suitable regimen; and, at the same time, a continually uniform progress in the whole mode of treatment must be observed, as each deviation from it gives reason to apprehend a relapse; an increase or unfortunate termination of the malady. In such cases the most cautious application of the means of healing is required. Sometimes the physician proceeds with more safety when he gives no medicines, and only watches the critical movements of nature; but sometimes by the uninterrupted use of stimulants he must ward off death until the powers recover their proper tone. These are the diseases in which the art of maintaining feeble life may be employed in its whole extent.

#### § 15.

Too much must not be ascribed to nature. We must not expect from her any thing supernatural or miraculous; nor must we expect every thing from external applications, medicines or regimen. We must never depart from the idea of AN ANIMATED ORGANIZED BODY. In employing the art of maintaining feeble life, we must even not lose sight of the direct method of healing; nor abstain from using medicines where necessary. There are certain cases where the restoration of health requires external stimulants; and on such occasions to abstain from applying a powerful remedy would be negative murder.

#### § 16.

But, on the other hand, what advantages does not the art of maintaining feeble life secure to the physician? In following the rules of this art, he carefully guards

guards against every violent agitation which might break the tender vital thread, and employs no direct means of cure, when he is apprehensive of thereby endangering the life of a human being. In this respect the empiric, who runs all hazards and either cures or kills, will often get before him; as fortune sometimes favours the rash and the presumptuous. But it must give satisfaction to the real physician to reflect that he has done no hurt, in cases in which he had no certain prospect of doing service\*.

### § 17.

He who has particularly in view the preservation of the life of a feeble patient will be a more careful observer of nature. Attentive to every crisis and variation of the disease, he will watch the moment when the application of a powerful medicine, that may preserve life, is seasonable; while the too active physician, very often, confounds the effects of a stimulating medicine with the mere effects of nature; and, amidst his hurry and bustle, overlooks the precious moment in which a capital blow might be struck against the enemy. This method, the work of cool deliberation, mature reflection, and unprejudiced, careful observation, is employed by the greatest physicians. Physicians of this description, such as a B. J. HOFFMANN and a GILBERT, have been particularly successful in the cure of chronic diseases. The field of the medical art requires a slow Fabius as well as an impetuous

\* In his angustiis medici officium, quod parens medicinæ binis vocabulis: *εὐφραδὴν, ἢ μὴ βλαπτειν* (prodesse aut si id nequeat, non nocere) totam circumscripsit, is probe defungetur, qui alteram solum ejus partem *μὴ βλαπτειν*, expleverit. Stoll rat. Med. i. 10.

Hannibal; and it frequently happens that the former triumphs when he knows how to prolong the war, and often tires out a more powerful enemy. In the like manner, it frequently happens that the physician, if he particularly exerts himself to preserve the existence of his patient as long as possible, and notwithstanding his feebleness to repel death day after day, at length overcomes the disease, and contrary to expectation restores him to welcome health. It is a very common observation, that a patient attacked by a severe disease will perhaps recover because the disease is lingering. Art is sometimes so fortunate as to conduct the patient past a certain fatal period, which is called throwing a bridge over the valley of death. A very remarkable instance of this, much in point, may be found in the first volume of Hufeland's *Essay for promoting Health and sound Life* \*. In the same manner as this was effected, in the case here quoted, by mental stimulants, it may be accomplished also on other organs, by other stimulants. Thus mortal paroxysms of fever are averted by opium or cinchona †.

Nothing tends so much to secure to the physician the confidence of his patient as to exert himself to procure a respite for feeble life, when all others doubt of the possibility of maintaining it. This flattering hope draws closer the band between the physician and patient, which is certainly a most essential advantage to both. It is the physician's duty never to desert his patient till he is fully convinced of his actual death. Till the complete departure of life there is still a possibility of saving it, at least in many

\* Page 214.

† Burseri Instit. vol. i. 240.

cases; and even when this is impossible it is still a duty to prolong it.

§ 19.

There is nothing so presumptuous, if we will honestly confess the imperfection of our art even to effect the mere preservation of human life, as to feed the chimerical idea of renovating age; restoring powers actually lost, or of eternal youth. It is much more becoming the dignity of the modest physician, who knows the boundaries of his art, not to promise to patients, who have attained to a great degree of asthenia, an unconditional cure; and thus to deceive unfortunate beings with a hope which has the appearance of insulting mockery; but his duty as a physician, and his feelings as a man, require that he should promise to do every thing in his power to preserve them in life as long as possible, and by these means, perhaps, to discover a method of restoring them to complete health.

§ 20.

Those acquainted with the value of human life, know the importance of a year, a day, and even an hour; and these when spent amidst the full enjoyment of the vital functions, of how much importance to our whole existence! what events, fertile in consequences, depend often on one hour of our life! It is, therefore, an eternal and irreparable loss, when not enjoyed as it ought. On the bed of death, an hour often determines the fate of whole families and states. How many sick die in greater peace, because, by having lived an hour longer, they accomplished one of their most ardent wishes. With what anxiety do many  
dying



dying fathers wish for such an hour, because they expect the arrival of an absent son. How grateful is this hour to surviving friends, who have received from a dying man information respecting some important event of his life. Is any thing farther necessary to give importance to the art of prolonging feeble life?

### § 21.

In the present period, when the number of asthenic diseases is so considerable, this art must recommend itself; and indeed never was it so necessary both for the physician and the patient. This is the case in particular, among physicians of the first class, who have to struggle against artificial as well as natural debilities. It too often happens that asthenia exists to such a degree among enervated people, weakened by their mode of life, that no hope is left of restoring their lost health; much less of converting their increasing infirmities into rustic health and strength; and that the highest triumph which the medical art can obtain, is to assist the gouty voluptuary, or the nervous lady of fashion, to hold out for a couple of years longer; especially when he has to counteract or overcome incessant irregularities and debilitating habits, which his patients will not abandon. How many physicians, by their situation, are obliged to acquire experience in this great art, and yet are blamed because the artificial life which they procure to their exhausted patients, for a number of years, comes at length to an end.

### § 22.

That we may be better able to comprehend the full value of the art of preserving feeble life, I shall here  
take

take notice of some objections which may be made against it.

How void of enjoyment is a life spent amidst so much misery and pain, which render it like a continued disease. How often does the unfortunate wretch wish for death, and how many say that they would prefer a speedy death to lingering sickness. Is the preservation and prolongation, therefore, of such a wretched artificial existence a benefit? Plato \* also, where he relates the story of Herodicus, condemns this invention; and asserts that diseases which cannot be removed by medicine, the knife or cauteries, and whose endless effects can be prolonged only by regimen and exercise, require no physician; for death is better than such an half existence.

With the permission of all philosophers, philosophers and non-philosophers, I shall here offer the following, certainly not unphilosophical, answer. Our life does not consist in pure pleasure and enjoyment. Sufferings are often necessary: diseases secure health and strengthen life. It is not he who merely enjoys that lives; but he also who suffers and endures with patience. Even under the pressure of misery, continued for years, there are sometimes cheerful moments; and custom, by blunting our sensations, makes some sufferings supportable. Joy arises, therefore, sometimes from the bosom of misery. The sufferer can find some relief for his torment by giving vent to tears. The wish for annihilation is gradually lost under the continuance of misery. The most melancholy and the most painful life is still life, during which a man may discharge duties attended with important conse-

\* De Repub. Dialog. III.

quences to himself as well as to others; and does not the hope of relief always remain till the total extinction of life? In a word, let us turn for a moment from these very learned and deep thinking men, and ask the immense multitude of those oppressed with age and bent by infirmity, whether they wish to procure a respite for their feeble and sickly life? Methinks I hear them all with one voice loudly exclaim in the affirmative. Is it not the part therefore of the friend of humanity to endeavour to gratify their wishes?

But when the patient, tortured with insupportable pain, invokes death, and when even a sight of his misery is more than those around him can bear; when, according to every appearance, no relief is possible, and each succeeding hour encreases his suffering, is the art of the physician who prolongs this life of misery, beneficial? What a struggle between duty and compassion! Shall we pull the dagger from the wound and put an end with it to the sufferer's life? When Epaminondas lay weltering in his gore, on the field of battle, he did not draw the dagger from his bosom till he heard that his army had conquered. A wounded man, writhing with the most dreadful torture, and struggling with death, yet not expiring, was once brought to a certain physician. Soon after it was found that he had breathed his last. When the physician was asked the reason of his sudden decease? he replied: 'Being convinced of the impossibility of saving the unhappy wretch, I hastened his death by an operation.' What sentiment of feeling did this physician follow?

## § 23.

The requisites for the art of maintaining feeble life, deserve also to be mentioned.

1. An acquaintance with the nature of man ; and particularly the study of the influence of the vital principle on the sound and diseased state.

2. An acquaintance with the healing art, in its whole extent.

3. A knowledge of the patient, his individual state and habit, in order to enable the physician to apply his knowledge of the general causes of Asthenia to particular cases.

4. A knowledge of the disease ; its origin, its usual progress and its accidents, in order to avert approaching danger, if possible, and to lessen that which exists.

On the part of the physician, who endeavours to effect the maintenance of asthenic life, the requisites, besides the necessary knowledge, talents and address, are a high degree of acuteness and practical sagacity, and great attention to every thing that takes place in regard to his patient ; presence of mind to enable him to recover from embarrassment in sudden accidents ; great courage, perseverance and firmness, to prevent his patience from being exhausted by the many turns of the disease, unexpected incidents, and the peevishness of the patient ; in a word, all those rare properties so difficult to be acquired.

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## I.

## ASTHENOGENY;

OR,

*THE DOCTRINE OF FEEBLENESS.*

## CHAPTER I.

## IDEAS RESPECTING THE VITAL PRINCIPLE.

No mortal being, howe'er keen his eye,  
Can into Nature's deepest secrets pry.

## § 24.

THE naturalists and physicians of the present period, by their indefatigable researches, have made great progress in the discovery of that all-powerful principle, which I shall call the vital principle\*. This principle we know exists; but with its essence we are unacquainted.

## § 25.

The vital principle is peculiar to all organized bodies, in which we observe irritability and power of action; though the action of the vital principle is

\* The motives which induced me to adopt the term *vital principle* rather than *vital power*, the former being more definitive and subject to no misconception, may be found in Röschlaub's *Pathogeny*, Part I. Were this expression generally employed, it might contribute to make the Brunonians and Anti-brunonians understand each other better.

sometimes not perceptible to our senses, even where it exists, as is the case in apparent death. § 78. § 82.

§ 26.

The vital principle manifests itself more freely and with more activity, according to the powers with which it is connected. Its action is merely simple when connected with vegetable powers in plants; it acts in a more compound manner when connected with animal nature; but in the most perfect degree when connected with the spiritual powers in man.

§ 27.

Wherever we find a more delicate, more complex, and more perfect organization, we observe also a more delicate and more perfect action of the vital principle; consequently the vital principle is most perfect in man. Man lives the most perfect life. In man we find a combination of physical, animal, and spiritual powers, all tending to one end. This wonderful whole; this equilibrium of the action of powers, heterogeneous to each other, is maintained by the vital principle. It is the medium of the spiritual, physical, and animal nature of man.

§ 28.

The vital principle is different from all the other powers with which we are acquainted. It distinguishes itself from the chemical powers by this circumstance; that the latter cannot freely exercise their action till the union between them and the vital principle is destroyed. The process of corruption cannot take place in an organized body, or, at least  
proceed

proceed to a considerable degree, and much less be completely ended, until the vital principle is withdrawn from it. This holds good in regard to single parts, as well as of a whole. The vital principle, however, is not soul; for it is found without the power of thought in vegetables; and even, in man, it may be in perfect action where the power of thought is totally suspended, or deranged in a high degree, as in those struck with apoplexy, and insane persons.

## § 29.

The phenomena of the expansion of growth, and the concurrence of individual powers, for maintaining organic existence, cannot be effected by a chemical operation alone, but require the assistance of the vital principle. The operation of the chemical powers acts in separating, decomposing, and dissolving the whole; but the vital power, in maintaining and preserving the being; in keeping together the whole. Even by its action on the chemical powers, it makes them to operate for the support of life.

## § 30.

Hence arises the difference between *animated* and *inanimate* bodies. The latter, according to their peculiar nature, are subjected, sooner or later, to the laws of solution and decomposition; from which the former are exempted by means of the vital principle. The action of external impressions on animated and inanimate bodies is totally different. Heat communicates itself to both; but in a manner altogether different. An inanimate body receives heat in all its degrees; but it can be communicated to animated

bodies only in a certain degree. In an inanimate body heat produces decomposition and solution. An animated body can withstand a considerable degree of it. The air decomposes inanimate bodies much earlier, and in part speedier, than animated bodies : some more and others less. All destructive external impressions, are not only in themselves less prejudicial to animated bodies, as they are counteracted by the vital principle ; but their pernicious effects are always removed by a restoration of what has been lost.

### § 31.

The vital principle is self-subsistent, free, and independent. It is only modified by foreign powers, between which and it there is a certain mutual connection. It exists also without this connection ; that is, without the organization which it at present animates. It is not confined to certain bodies ; but is generally diffused throughout the corporeal world : it is indestructible. As soon as an organized body is decomposed, it removes from it, and communicates itself to another organization. In a word, it has a great resemblance to the electric fluid.

The grounds of life, therefore, do not lie in organization, nor in stimulants ; both are necessary conditions of our existence on earth.

### § 32.

The vital principle manifests itself differently, according to the organization in which it acts. This is the case not only in the different organizations of animal and vegetable nature, but also in regard to the difference of the organization of bodies of the same genus.



genus. Hence the different phenomena of the manifestation of the vital principle in some men ; because each man has his own individual organization. This may serve to explain the difference of constitution and temperament.

In the last place, the manifestations of the vital principle are varied by changes made in the organization by disease ; and even by the changes which the organization experiences from external and internal stimulants, and by complete conformation at different periods of life.

### § 33.

Each organ, and each of the single systems of human nature, has its peculiar vital principle ; or, to speak with more precision, in each of these systems and organs, the vital principle manifests itself in a manner entirely peculiar : it manifests itself one way in the nerves, and another way in the lymphatic system ; it acts one way in the organization of the eye, and another way in the organization of hearing. These different vital functions depend on the particular structure of the organs. The organic structure of the eye is so adjusted that it serves, by means of the vital principle acting on it, as an organ by which the images of objects are conveyed to the brain. The case is the same in regard to hearing. This may serve to explain the phenomenon, why some of these systems are put into more violent activity, according as certain local stimulants act upon a certain organ. Thus arise the great activity, the inflammation and suppuration of those parts to which vesicatories have been applied. Hence are produced, from the greater or less influence of the vital principle, those different changes in these organizations and systems, which we call local diseases.

## § 34.

Some organs and systems of the human body have a greater share of the vital principle than others ; for example, the brain and nerves ; the heart, the system of the lungs, &c. These we call vital organs.

These organs, by means of their organic construction, are particularly susceptible of the vital principle. How long does life remain in the heart when it is dead in every other part of the body !

## § 35.

The vital principle has a greater or less attachment to certain kinds of organization. This we find to be the case throughout all nature. The simpler the organization the more strongly does the vital power adhere to it. Of this the polype affords a very plain instance.

## § 36.

In the organization of the same genus, we observe also a greater or less attachment of the vital principle, which counteracts more or less the operation of destructive powers. This is the case in the most complex organization of man.

## § 37.

A greater attachment of the vital principle takes place also in some particular parts of the human body.

## § 38.

The vital principle, in all probability, remains longest in the heart.

## § 39.

It is a principle which we know from its different effects ; and to the peculiar phenomena of which we give the name of peculiar powers. Susceptibility of irritation, irritability, the nervous power, power of reproduction, and the healing power of nature, are nothing else than modifications of the vital principle. One of these actions may be wanting, or exist in a degree imperceptible to our senses, notwithstanding the presence of life ; and therefore, from the non-existence, or inactive state of irritability, we cannot form any certain conclusion respecting the absence of life. The action of these, so called peculiar powers, may, in many states, be totally different, without life being thereby particularly affected. It may be impossible to excite susceptibility of irritation, even when internal life exists. In general the vital principle cannot be explained from one or more of these so called powers, but from the action of all of them taken together : individually they are merely signs of the existence of the vital principle.

## § 40.

The vital principle depends on itself alone ; but it can be found only under certain conditions, which depend partly on the nature of the organic body, and partly on the action of stimulants.

## I. ORGANIZATION, OR ORGANIC BODIES.

## § 41.

An organized body, is a body which by means of its internal and external structure, is more capable of

animation; and which by a peculiar (organic) structure differs from all inanimate bodies, and bodies incapable of animation.

This susceptibility of life and animation, is called ORGANIZATION.

### 1. *Susceptible of animation.*

To become so, a peculiar (organic) structure of body is necessary. For example, in the animal body; nerves, cellular membranes, vessels, fibres: in a vegetable body; capillary tubes, roots, &c.

### 2. *Animated.*

A body cannot be called organised, if it be not subject to the influence of the vital principle. As soon as the vital principle is withdrawn from a body, it retains its organic structure till the desiccation, decomposition, and separation of its single parts, have taken place; but when it becomes no longer susceptible of the vital principle it is dead; it is a lifeless body (§ 76.)

Under organization, in general, we understand the general construction of a body which renders it susceptible of animation, and which actually contains it within itself.

Organ and organic body have an affinitive signification; as the instruments of life.

### § 42.

All single parts of the body, which by means of their peculiar structure are destined for certain operations of life, are called ORGANS: As the organs of hearing, the organs of sight, &c.

All parts of a body capable of animation, are properly organic: they form that construction.

## § 43.

ORGANISM is the connection of several organic parts for a certain kind of vital operation. Thus we say the organism of the brain; the organism of the instruments of digestion. This expression is more apposite than system, which is used in the same sense.

## § 44.

In the following propositions, we shall consider organization in the same sense as body, when opposed to spirit: a mass capable of being acted upon by the vital principle. In this sense, we understand by organization the animal or vegetable bodies, with all their nerves; muscles, bones, vessels, formation, structure and mutual connection. We shall afterwards shew the relation of the human organization, or human body, to the vital principle.

## § 45.

The state of the organization, or organic human body, opposes more or fewer obstacles to the free manifestation of the vital principle. When the organization is destroyed, the action of the vital principle is rendered impossible; by a faulty organization it is impeded. The defects may exist either in the organism of the body, in general, or in single organs. By these the susceptibility of the body for the vital principle is always impeded.

This may be illustrated by the electric matter, which has always a greater attachment to one body than another.

## § 46.

Single parts may contain more or less of the vital principle, according to their nature and condition; it may be partially annihilated, as in cases of mutilation, or they may have organic defects.

## § 47.

By this greater or less accumulation of the vital principle, in single parts of the body, there arises an **UNEQUAL DISTRIBUTION** of it, which is called a diseased state. Those parts of the body in which the vital principle is exclusively or particularly active, and in which it seems to concentrate itself more by a greater accumulation, are worn out and weakened by its too great activity. This weakness of single parts spreads at length, throughout the whole body; and effects a general debility, which becomes the cause of death.

## § 48.

DEFECTS IN THE ORGANIZATION ARE,

1. *Natural.*

As in the case of men born without certain parts belonging to the whole, or with variations from the usual structure. In this class may be placed innate mutilations, blindness, dumbness, &c.

2. *Accidental.*

Defects in the organization through disease, the causes of which are either *external* or *internal*. To this class belong those changes which are occasioned in the organization by the destructive hand of time, and the changes

changes which take place in *old age*. By the incessant activity of life, its restless movements, muscular exertion, and the impetuous pulsation of the blood against the vessels, the organic parts are gradually worn away, and as matter are consumed of themselves.

## § 49.

The specific susceptibility of the organization is also here to be taken into consideration. It is observed that some bodies are more fitted than others for receiving the vital principle.

This susceptibility is either originally present in a greater or less degree, according to the peculiar organic structure of certain parts; or accidental, in consequence of the free or impeded expansion of organic parts. It may at first be weak, and gradually increase; it may be lost in the course of time, or may be suddenly withdrawn from a body, as in old age; or by the action of speedy poisons, and the mechanic destruction of organic parts, through external violence.

## § 50.

It is an observation of some importance, that this susceptibility exists in our bodies in a greater or less degree at certain periods. This holds good, both in regard to the general organization of the body, and to single parts. Observation of the latter, as in the case of lameness, may serve to illustrate the first. I am disposed therefore to admit rather a lessened susceptibility of the body, than a greater or less accumulation of the vital principle.

## II. STIMULANTS.

## II. STIMULANTS.

## § 51.

Under the term stimulants is understood every thing that exercises an action on man; our external and internal condition; and hence external and internal stimulants.

## § 52.

1. EXTERNAL STIMULANTS: air, heat, light, &c.

2. INTERNAL STIMULANTS: all movements of every kind which take place in the body.

We do not understand by external stimulants such things as act merely on the surface of the body; nor by internal such as penetrate to the interior part of it; but stimulants which act from without or from within; internal, those by which, through some cause existing in the organization, a change in it is effected; external stimulants, those by which the same effect is produced through some cause existing without the organization. All external and internal stimulants produce changes in the body.

All these stimulants when moderate serve for maintaining life; but if too violent they destroy the organization, and produce too great activity of the vital principle; if too weak, they are incapable of exciting that activity which is necessary for life.

We shall here take notice of those external stimulants which are indispensably necessary for maintaining life. Without these external stimulants no life can exist, and if they are entirely withdrawn, the organization immediately becomes incapable of animation.



tion. An animal must die instantaneously when deprived of air. The remains of life, which we observe in an animal under the exhausted receiver of an air-pump, shews that some air is still left in it. Among these indispensable requisites of life are air, light, heat, and vegetable or animal nourishment. That the first-mentioned afford real nourishment to life needs no proof.

## A I R.

## § 53.

Without air, no animated body can exist; plants and animals both die in vacuo.

But we must not consider air merely as an element assigned to us for living in, but as the real pabulum of life. We not only inhale it through the lungs, but imbibe it through the whole surface of the body. Air consists, in particular, of two component parts: oxygen and azot. The former, as the basis of vital air, is favourable to vegetable and animal life; but the latter is pernicious and mortal, particularly to the life of animals. According as the quantity of either of these is increased or diminished in the atmospheric air, it becomes more salubrious or destructive. Something, however, depends on the constitution of the body; whether the vital principle in it be more or less active, and whether the juices contain more or less oxygen or azot. Hence it happens, that too pure air, which contains a large quantity of oxygen, is insupportable to asthmatic people; while, on the other hand, it is exceedingly proper for those who are scorbutic. Oxygen is the real pabulum of life; but it must always be in a combined state, because when en-  
tirely

tirely pure, without a mixture of azot, it excites in an immoderate degree the activity of the vital principle, and consumes feeble life too speedily. Birds kept in vital air have been exceedingly lively; but they existed only a short time\*.

## L I G H T.

### § 54.

Another important power, which has a great influence on our life, is light. Being friendly and beneficial both to animals and plants, it contributes towards the duration of their existence. It is probable that it acts upon us not merely through the eye, but through the whole organization of the surface of the body; for every stimulant which acts in a particular manner on any organ, susceptible of its impression, acts also in a sensible degree on the remaining part of the whole organization: on the mind and body. The lowest degree of light is darkness. The less light, the more melancholy and sickly is the condition of the animated body. An excess of light, however, increases irritability too much; excites indirect feebleness, relaxation after too great tension, and hastens vital consumption. A moderate degree of light is always the most supportable; but we must not forget that many bodies for their existence require different degrees of it. Plants do not thrive in darkness; in a close apartment they always incline towards that quarter where there is most light. Men immured in

\* Röschlaub in his Pathogeny, II. § 916—931, adduces some strong arguments against the assertion that the more air contains oxygen the more it excites life.

gloomy jails become pale, and assume a miserable appearance\*.

The more light is increased, the greater is the activity of the vital principle. With a deprivation of light nature has connected a decrease of vital activity, and regulated our state of being asleep or awake by the alternation of light and darkness. The order of nature cannot be reversed without injury to the body. Man, therefore, can do nothing more favourable to life, than to adhere to its regulations. This plan was followed by the first of the human race, who inhabited the earth; and by these means they reached the proper term of human existence.

## H E A T.

### § 55.

Heat is an essential requisite of light, with which the vital principle is most intimately connected. Wherever there is life there is heat; yet life requires a moderate temperature of it which is neither real cold nor heat. The actual absence of heat, or absolute cold, occasions the death of every created being. By means of the vital principle, however, organized bodies can endure, for a longer or shorter period, an exceedingly high or low degree of heat; but absolute heat or absolute cold would deprive them of all life as speedily as lightning. The former consumes and dissolves; the latter benumbs. What we call cold is properly a mixture of a preponderating or greater portion of absolute cold with heat; as, on the other

\* Röschlaub's Pathogeny, II. § 1075, &c.

hand, our heat is a mixture of a greater accumulation of caloric with a disproportioned smaller quantity of cold.

This observation, in a practical view, is of more importance than might be supposed. It will serve to explain why, in the treatment of persons frozen to death, ice water acts as an exciter of heat.

Though an organized body may be deprived of external heat, we must not say that it is destitute of internal heat, with which the internal oppressed life is connected. In general, as long as a body is fully animated; that is, as long as the vital principle within it is fully active, it is never destitute of internal heat: where there is a deficiency of this natural heat life is always feeble. This holds good in general of the whole body, as well as of single parts. If the vital principle be oppressed and not sufficiently active, nothing can give us hopes of the restoration of its activity but the presence of the natural heat; at least wherever we perceive that heat, the vital principle exists, though all the other signs by which it is announced, and even motion, be wanting. This holds good both in general, and in regard to single parts of the body. Thus, for example, in cases of lameness, we may conclude that the vital principle is still present, even in the maimed parts, only that it is not sufficiently expanded and active; that it is in an oppressed and confined state.

### § 56.

The attachment of the vital principle to heat is observed in the treatment of persons apparently dead; as internal heat is the strongest stimulant for exciting the dormant life, and calling forth the internal heat of the body.

### § 57. Heat

## § 57.

Heat evidently strengthens and animates; cold weakens. The former has been fully established by Marcard, in treating on the effects of the warm bath. The weakening power of cold seems, however, contrary to our usual observation, and to our sensations, so apt to deceive us; but too little attention has hitherto been paid to heat and cold in regard to their influence on the vital principle. When a great activity of the vital principle prevails, there is a great degree of natural heat in the body; whether this great activity be regular, as in the state of health, or irregular as in inflammatory diseases. Hence it happens, that people in this condition, with an immoderate degree of internal heat, are less sensible of cold, or are rather refreshed by it; as it serves to conduct from the body the superabundant heat. In the contrary case, where the vital principle is less active, and where feebleness exists, as in people whose powers have been exhausted by chronic diseases, the effect is entirely different. Such persons will find themselves much incommoded by cold; they require rather heat. How then can cold be properly considered as a real strengthener? In the first case it is merely negative. Cold, however, by speedy application may act as an indirect strengthener; but then it acts as a stimulant, as in washing with cold water. The cold-bath, therefore, is in general beneficial, when employed for a very short period.

The difference of the relation which external heat has to living and dead bodies must also be remarked. Living bodies receive external heat only to a certain

D

degree;

degree ; inanimate bodies receive it in all its degrees. That a greater degree of natural heat is connected with a greater activity of the vital principle, may be observed by that more diffused heat produced by the use of spirituous liquors.

## § 58.

There are still two subordinate requisites for the maintenance of the vital principle ; water and earth.

## § 59.

Water, by its peculiar animating principle, that is oxygen, has an affinity to the vital principle. This is observed in vegetable as well as in animal life. How refreshing is warm rain for all vegetables ! The beneficial animating effects of the bath, and of the use of pure fresh spring water, arise from the same cause. Water, by remaining in a stagnant state, loses this property. Water, however, contains also nourishing particles ; the influence of which, in regard to the maintaining of vegetable and animal life, is evident from observation.

## § 60.

Earth, with great justice, is called our general mother. Plants derive immediately from the earth their coarsest nourishment, which, by the vital principle, is converted into the essential substance of the plant. Poisonous plants, therefore, can grow in the same soil close to salutiferous herbs. But the earth is also, in a physical sense, the mother of mankind. The human body contains in its composition, not only earthy particles, but receives earthy matter in its food and drink, and even in water. As long as the vital principle is in full unimpaired activity, a superabundance

perabundance of earthy particles is prevented; but the more this activity is lessened by age and bodily infirmity, the more the earthy part in the human body increases; and after the total loss of the vital principle, man returns to the earth from which he was formed.

## § 61.

The nourishment which plants derive from the earth, and which animal bodies obtain from food and drink, serves not only as a requisite for the activity of the vital principle, but as a necessary support of life. This nourishment is indispensable for maintaining the organization; and is employed to supply the loss occasioned by the action of the vital principle. Life itself may be compared to flame, which cannot be kept up without nourishment; but certain external matters are converted by the vital principle into nourishing substances, and assimilated with the body. Our bodies are therefore continually suffering waste, and the organization becomes exhausted if it receives no addition from without. This is death arising from hunger, or when, on account of the faculty of assimilation and animalization being lost, the body is rendered unsusceptible of nourishment, as in consumptive disorders.

## § 62.

The more active life is the greater is the consumption of bodily nourishment; and the greater the need of restoration if we wish to prevent inanition and consumption. But the whole effect does not depend here on the quantity of restoration; a great deal depends also on the activity of the vital principle, and of the system of digestion. We can thence explain

plain why consumptive people, however much food they may use, still waste away and become more and more exhausted.

## ACTION OF DIFFERENT STIMULANTS ON THE VITAL PRINCIPLE.

### § 63.

We shall farther consider the action of different stimulants on the vital principle. Among these stimulants are air, heat, and light, which, as already observed, are absolutely requisite for life; nourishment and substances, which act in small quantities, as medicines and poisons. These stimulants are of different kinds.

1. **MECHANICAL**; such for example as external force from the action of hard bodies.

2. **CHEMICAL**; as food and drink; both these kinds of action we comprehend under the name of physical stimulants.

### § 64.

To this head belong also mental stimulants, stimulants of the soul, through the power of the will.

### § 65.

The relation of the vital principle to the thinking faculty requires particular consideration, by which the difference between them will be better illustrated.

1. Between the soul and the vital principle there is an inseparable relation. The vital principle may subsist without soul; but the soul can inhabit no organized



ganized body without the vital principle. The vital principle forms the connecting medium between the physical and spiritual nature of man. When the vital principle is withdrawn from individual parts of the human body, they are no longer subject to our will; as is the case in regard to limbs attacked by lameness.

2. We can at will increase the activity of the vital principle. The exertion of the will to move a lame member, is not always unattended with effect.

3. Mental stimulants act also independently of our will, in exciting the activity of the vital principle, and produce astonishing exertions, particularly of the muscular powers. Hence the extraordinary strength of very weak people when danger arises from fire.

4. The influence of the soul on the vital principle, during violent passions; such as anger, fear, terror, is particularly to be remarked.

5. The mental powers have no less influence in regard to maintaining the vital principle in the body, and to the duration of life.

## § 66.

The relation of external stimulants to the vital principle, must here be remarked also. They act on this principle different ways :

1. **MEDIATELY**, through the body, or through changes previously produced in the organization.

2. **IMMEDIATELY**, on the vital principle itself, or in the next place on the principal organs of life, the brain and nervous system; for example, the mental stimulants of the passions through the effect of fear: also physical stimulants, lightning, and poison of the

38 I. ASTHENOGENY; OR,  
laurel cherry; all exhilarating substances, spirituous  
liquors, &c.

§ 67.

The difference between the mediate and immediate effects of stimulants on the vital principle, may be explained by comparing the consequence of the use of common solid nourishment and spirituous liquors, particularly in regard to those unaccustomed to them.

§ 68.

By custom and long use, stimulants which have an immediate action on the vital principle, may, according to what has been said in the preceding section, be classed among those which have a mediate action, as is the case in regard to spirituous liquors.

§ 69.

We must particularly distinguish those stimulants which act exclusively on the vital principle, and which by their strength annihilate life in a moment, and deprive the body instantaneously of all its vital principle; as in the case of death by lightning, or through violent fear.

§ 70.

The consequence still more shews this immediate action on the vital principle, as the putrefaction which speedily takes place in the bodies of those killed by lightning, where the operation of the chemical powers begins immediately after the vital principle has been totally withdrawn.

## § 71.

Between the mediate and immediate action of stimulants on the vital principle, there are however many degrees, as the organization is sometimes more affected, and sometimes the vital principle.

## § 72.

External stimulants act upon the body also :

1. By EXCITING : wine and heat increase the activity of the vital principle.
2. By DEPRESSING : excessive evacuations or fatigue lessen the activity of the vital principle.

More, however, depends on the quantity of the stimulant, than on the stimulant itself. Wine exhilarates when used in moderation, but if used immoderately may reduce a person to the state of apparent death.

## § 73.

We must here farther take into consideration the susceptibility of the body for irritation (§ 79), which is :

1. GENERAL : a susceptibility of all stimulants whatever.
2. SPECIAL : a susceptibility for particular stimulants. Many persons, therefore, are particularly affected by certain things.

## § 74.

The body is rendered more or less susceptible of irritation, by a great many causes which arise from the constitution and habit ; we must also take into

account the more remote exciting causes: mode of life, nourishment, physical and moral condition.

### § 75.

Another difference is to be remarked between the general susceptibility of irritation in the whole body, and the susceptibility of individual organs often so remarkable.

In the perfect sound state there is an equal distribution of this susceptibility.

A want or excess of it in the whole body or single organs is the diseased state.

## ANIMATED ORGANIZATION.

### § 76.

The idea of animated organization gives us a point of union to the different opinions of the physiologists, who sometimes explain the phenomena of human nature from organization considered as body; and sometimes from the vital principle alone; or at any rate grant too much to one of these causes. All these phenomena may be explained from animated organization in connection with the power of thought, and consequently from the whole man. In future, therefore, when we speak of the vital principle, or organization, the reader must keep in mind, that the vital principle manifests, and can manifest itself, only in an organized body; and that an inanimate organization, deprived of the influence of the vital principle, is nothing but a corpse.

## § 77.

We observe two properties of animated organization, or effects by which the vital principle manifests itself in organized bodies, viz. irritability and the power of action.

## § 78.

IRRITABILITY (*Irritabilitas*) is the property of organized fibres to re-act, on the application of a stimulant, by contraction, by becoming shorter, and by making their component parts to approach each other, but only in the place which is topically affected by the stimulant. This property, however, does not always exist in an equal degree. Sometimes it escapes our usual observation; can be excited only by metallic stimulants, and is sometimes insensible to these, even though the vital principle may be present: for as long as the vital principle is present irritability exists. Irritability is an effect of the vital principle; and the more active that principle is the greater the irritability. But we know that the activity of the vital principle, and the sum of it, may be in a very different ratio; and therefore in the diseased state we often find the greatest manifestations of irritability. On the other hand irritability may exist, and yet give no evident indication of its presence, when susceptibility of irritation is wanting.

## § 79.

Sensation, or the faculty of organized fibres to be affected by stimulants, Hufeland calls SUSCEPTIBILITY OF IRRITATION. In this work we consider it not as a peculiar self-subsistent property of animated organization, but comprehend it under the idea of irritability.

irritability. It is very true, that the organization is sometimes more or less sensible to stimulants; that susceptibility of irritation seems, under certain circumstances, to be totally destroyed, and that stimuli are received without any sensible re-action. But irritability and susceptibility of irritation have a certain relation, and are always present with each other, only this relation is not at all times the same; for both may be present in such a very different degree, that one of them is not perceptible to us by external signs. Susceptibility of irritation, therefore, is the faculty of being affected by the impression of stimulants, and irritability comprehends the changes occasioned in the animal body by these stimulants.

### § 80.

Irritability is in an unequal ratio with the vital principle. Though the former is an effect of the latter, it is prevented from manifesting itself by various impediments, or is excited in too great a degree by stimulants. In both cases, more or less of the vital principle may be present in the organization. A confined state of the vital principle, and oppressed irritability, are observed in apparent death, though internal life may still be existing, and immoderate irritability, with feeble life is observed in malignant nervous fevers, as is proved by the convulsions of those who die of these diseases.

Irritability in different states is stronger or weaker; immoderate or deficient as in many diseases. This is the case also at different periods of life. Irritability is strongest in childhood, and weakest in people of a very great age.

Irritability is stronger in the female than in the male sex.

Education, mode of life, and occupation, make a great difference in regard to plus or minus.

Irritability may exist in different organs in a very different degree; for example, a great irritability of the organs of digestion, of the organs of thought, of the organs of generation, &c. This difference is of great importance in the treatment of patients.

#### §. 81.

From the above disproportion between irritability and the vital principle, we can ascertain what dependance is to be placed on Creve's test of apparent death. Metallic irritation is the mean by which we are able to excite irritability, in cases when it is no longer excitable by any other stimulants with which we are acquainted. We convince ourselves, therefore, by this experiment, so far as irritability is an effect of the vital principle, whether life is still present. But it may be asked, whether the vital principle cannot be present in so weak a state, as to be no longer capable of being excited? and in that case this proof would afford as uncertain a test for examining whether life be present, as the remaining natural heat which we observe in apparent death that ends in real death, a long time after all other signs of life perceptible to our senses have disappeared. This proof alone gives us therefore nothing certain; but when connected with some particular symptoms may be of importance. In individual parts separated from the body, we observe this property, as the effect of the vital principle, still present in these parts; but when the vital principle is withdrawn it disappears also. But may not susceptibility

susceptibility of metallic stimulus be withdrawn from individual organs, or be incapable of being excited in different muscular fibres, notwithstanding the existence of internal life? Creve himself confesses, that in many muscles it was sometimes impossible to excite convulsive movements by metallic stimulants; and therefore he advises trials to be made in some other place. All this, however, does not lessen the merit of the acute Creve, who first applied to this use metallic stimulants, with which trials ought always to be made in doubtful cases.

## § 82.

The POWER OF ACTION is the faculty of exercising the vital functions, which require a certain exertion of the activity of the vital principle. To this head belong muscular power, capability of movement, the power of digestion, secretions, and excretions; all the voluntary or involuntary functions of human nature, performed with considerable exertion of power.

## § 83.

The power of action, when the vital principle and organization are well constituted, is in its natural state. Where there is an immoderate activity of the vital principle, it is in an unnatural state; that is, acts more violently than what is required for preserving an equilibrium of the powers, as in the case of insane persons. Where the vital principle is weak it is feeble; when the vital principle is oppressed it is sometimes very weak, and sometimes when there is an actual want of the vital principle it is exceedingly violent. Such exertions of strength may be found in malignant



malignant nervous fevers, where the patients often before death jump from bed. All these shew a diseased state of the power of action.

#### § 84.

We find the sound as well as the diseased state of the power of action partly general, and partly in individual organs. As it may be said in some respects that each organ has its own vital principle, we can say also that each organ has its own power of action. The power of action may be stronger in some organs, and in others weak; and in some so violent that the rest suffer from it; as in the organs of the soul, the organs of generation.

#### §. 85.

The influence of the soul over the vital principle, appears most clearly in the power of action. What muscular strength cannot the will, when animated by passion, give to the weakest bodies! The freer and stronger the action of the vital principle, the more does it shew itself in the power of the will. Every thing that exalts and excites the vital principle can also strengthen the latter. Thus after a glass of wine or agreeable news, we are able to continue our labour with more vigour. Every thing that weakens and lessens the activity of the vital principle, weakens also the power of action. This holds good in regard to direct as well as indirect debilitating causes; hunger, want of sleep, the immoderate use of spirituous liquors. Even by immoderate joy the spontaneous functions are impeded.

The power of action depends also on the good state of the organization, considered as body; on the good structure of the organic parts; and, on the other hand,  
suffers

suffers through organic injuries from within and from without.

§ 86.

The power of action is strengthened by every thing that nourishes and strengthens the body. It is increased by exercise, is accumulated by rest; but weakened and lessened by immoderate labour, long watching, and want of necessary movement.

CONCLUDING OBSERVATIONS ON THE VITAL PRINCIPLE, AND DEATH IN GENERAL.

§ 87.

The vital principle may exist in an organized body in very different degrees. This difference depends on the organization of the body itself; according as it is more or less susceptible of the vital principle.

This difference of susceptibility is observed,

1. In the nature and construction of different bodies; thus there is more vital principle in plants than in animals.

2. In the particular vital susceptibility of organized bodies of the same genus; thus some men have a much greater quantity of the vital principle than others.

§ 88.

This susceptibility of the vital principle is,

1. ORIGINAL: innate as it were; *fortes creantur fortibus*.

2. ACCIDENTAL: it is destroyed by diseases which effect a derangement of the organization.

§ 89.

A total loss and deprivation of the vital principle,  
and

and a commencement of the free action of the chemical powers in the body, is death.

§ 90.

Death ensues :

1. In consequence of the organization being destroyed, by which means it is rendered incapable of being acted upon by the vital principle. This is effected,

a) By the force of external powers and violent impressions.

b) By the gradual decay of vital susceptibility in the organization in the course of time : death in old age, when the organs become insensible to external stimulants ; when their susceptibility of irritation even is blunted, by which the progress of the bodily functions is rendered sluggish and slower, so that they can be excited only by uncommon stimulants, till the machine at length stops.

c) By the long continuance of very violent excitement, or an immoderate activity of the vital principle, which produces weakness and death ; an irregular life, uninterrupted mental irritation.

2. Or by the loss of the vital principle itself, even when the organization is in a perfect condition, in which case the vital organs alone suffer.

§. 91.

Death ensues either **SUDDENLY**, when the body is at once exhausted of the vital principle ; or **SLOWLY**, which is common natural death.

Except in these sudden cases, the transition from life to death takes place slowly ; and the vital principle always lingers in the chief organs, even when it has been withdrawn from all the external parts of the body.

body. In the most common kind of death, the transition takes place by means of apparent death, or apparent external death.

## § 92.

We ought never to conclude that real death has taken place, until the operation of the chemical powers has begun to produce decomposition and putridity. It is on these alone that we can establish any certain signs for ascertaining real death, and not on deficient individual effects of the vital principle, deficient excitability, &c. Unfortunately, therefore, we have no sign of death, on which greater dependance can be put, than corruption, until we shall be able to discover the commencement of the free activity of the chemical powers, which takes place before it is perceptible to us by external signs.

## § 93.

Every thing that has been said of the vital principle may be applied to life. Life is a product of the vital principle, depending on the state of the organization and external stimulants. We cannot properly call it, as Brown does, a forced state; since it is as free as the vital principle, though it cannot exist but under certain conditions.

## § 94.

The different degrees of life are those of the vital principle: its strength or feebleness depends on the quantity and activity of the vital principle.

The quantity and activity of the vital principle are not always in the same ratio (§ 402). A great deal of life may exist where the activity of the vital principle is small, and irritability weak. On the  
other

other hand it is possible that, with a high degree of vital activity, life may be exceedingly feeble. This is immoderate, diseased vital activity and irritability, which often manifest themselves a little before death, and by which the small quantity of the vital principle still remaining is soon exhausted. The only proof of a great deal of life is a continual uninterrupted activity of the vital principle, without being exhausted. Thus people in the years of youth, can, without injury to their powers, undertake very severe labour.

## § 95.

For this purpose a great susceptibility of the organization for the vital principle is required; and consequently solid, irritable fibres; these must

1. Have the property of being easily acted upon by the vital principle.
2. Must be durable enough to bear the continued impulse of stimulants.

## § 96.

The organization loses both these in old age; and hence arise insensibility, weakness, and rigidity.

## CHAPTER II.

## ON THE ASTHENIC STATE OF LIFE.

## § 97.

THE idea of *Feebleness* is entirely relative, and can be defined only by comparing it with strength. Feebleness is properly a less degree, and not the opposite of strength; a deviation from the sound state, or from that state which has all the properties of perfect life.

## § 98.

Those unacquainted with medical principles, and sometimes even physicians, form conclusions respecting general and actual vital feebleness, merely from external signs, such as impeded or weak power of motion. But this is only partial feebleness of the muscular power, which may exist with a certain degree of vital strength; or from great lassitude and heaviness of the limbs; a disposition to faint; and from the external structure of the body. But all these symptoms indicate false as well as real feebleness.

## § 99.

Pathology gives us different kinds of feebleness.

I. From *DEFECTIVE COHESION*. Hence the unfitness of the solid parts to perform their functions. The cause lies in some injury sustained by the organic parts, from wounds, lameness, &c. To this head belongs relaxation; decrease of cohesion, by which the extensibility of the solid parts is increased, but their  
power

power of contracting is lessened. This is the case in children.

2. **FEEBLENESS FROM TENDERNESS.** After violent extension, no regular contraction follows. In this state there is a weak connection of the fibres, which are therefore easily torn.

3. **FEEBLENESS FROM A WANT OF VITAL POWER.** According to Brown, feebleness, **ASTHENIA**, arises, in general, from a want of excitement; that is, from too great a deficiency in the effects of the exciting powers (stimulants). Only moderate action (excitement) produces the state of health, more or less diseased. Strength (*sthenia*) arises from increased excitement.

Brown assumes a direct and indirect feebleness; one of which depends on a deficiency of stimulus and excitement, the other on a disproportioned excess of them. A deficiency of the necessary excitement is occasioned by things which do not stimulate sufficiently, or which deprive us of the stimulating powers; among these may be reckoned cold, bad nourishment, immoderate stimulants, weakening immoderate heat, dissipation, intemperance, &c.

All these different opinions may be reconciled, if we seek for the grounds of feebleness in a deviation of the animated organization from its natural state; and consequently in the vital principle as well as in the organized body. This will be better illustrated by the following research respecting feeble life.

§ 100.

It is of great importance to make a proper distinction between feebleness (*asthenia*) and strength (*sthenia*) in order to guard against the many practical errors which arise from confounding these two terms.

Sthenia, real vital strength, supposes, in REGARD TO THE VITAL PRINCIPLE,

1. A sum of the vital principle proper for maintaining life.
2. A free unimpeded activity of the vital principle :

IN REGARD TO THE ORGANIZATION,

1. Good bodily structure, by which the body is rendered as fit as possible for the action of the vital principle ; and for discharging the vital functions. To this belong the matter of the body, and even the external form.

2. A good state of the organs.

- a) A due proportion of the fundamental component parts.

- b) Good cohesion, and proper admixture of the solid and fluid parts.

The causes and conditions of this state are external and internal action ; excitement in a moderate degree.

This is the real state of health. All deviations from it are feebleness. These deviations are,

- a) Such as *exceed* the real moderate degree of true vital health and strength.

- b) Or such as *fall short* of the moderate degree of vital strength.

In the first case we observe an immoderate activity of the vital principle, with a sufficient quantity of it present, and a good state of the organs : for example ; when men of a full habit are suddenly attacked by inflammatory fevers. This state might be called *hypersthénia* : it is similar to that which Brown calls *sthenia*.

In the second we observe either a deficiency in the sum of the vital principle, or a considerable derangement in the organic parts, or both : for example ;  
diseases



diseases brought on by severe labour, and low feeding; all diseases, after a certain period of continuance. This state is *ASTHENIA*, feebleness.

Sthenia passes into Asthenia when the organs, by too great activity of the vital principle, have been considerably injured. Thus inflammation of the breast passes into asthma. Hence it is evident, what diseases ought to be classed among the sthenic, and what among the asthenic. For the asthenic diseases, see § 258, &c.

Predisposition is a certain constitution of the animated organization, which exists long before any disease of a certain kind makes its appearance; and which is the fundamental cause of it. Those therefore who have such a predisposition or inclination to a certain kind of disease, will be attacked by that disease, when the first cause fit to produce it occurs. Thus some have a predisposition to inflammatory or cachectic diseases, others to consumption and hypochondria.

**STHENIC PREDISPOSITION.** A predisposition to sthenic diseases, is that constitution of the animated organization which exposes it to sthenic diseases; for example, a plethoric habit, great mobility in the functions, muscular power, high spirits. It is promoted by rich living, wine, spices, rest, &c.

**ASTHENIC PREDISPOSITION.** Predisposition to asthenic diseases is the opposite. It will be found explained, § 159.

§ 101.

**FEEBLE LIFE** is the consequence, 1. Of a deficiency of the vital principle; 2. Of confined activity of the vital principle; 3. Irregular activity of that principle; 4. Defective constitution of the organization.

## § 102.

The vital principle, in regard to its sum, may be present in the body in greater or less quantity. We must distinguish also, so far as perceptible to us, the manifestation of the operations of the vital principle, from the vital principle itself. The activity of the vital principle is never in the same ratio as the sum of it present (§. 314.)

## § 103.

1. Feeble life is the consequence of a deficiency in the sum of the vital principle. Of this we have an instance in extreme old age; which may be illustrated by the opposite state of vital strength: when an organized body possesses the whole sum of the vital principle, which it is capable of receiving, as is the case in the full bloom of youth and manhood. When the vital principle is deficient, all the functions of the body are performed slowly, the circulation of the blood and juices is confined, and the consequence is obstructions and accumulations; the digestion becomes weak, the muscular power is lost, susceptibility of irritation gradually vanishes, and is blunted, which produces insensibility to external stimulants. The susceptibility of the organization for being acted upon by the vital principle is weakened, as it does not receive sufficient excitement from that animating principle. Hence arise lassitude, debility, torpor, insensibility, wasting and consumption, death through old age. The action of the mental powers on the organization is also confined by a deficiency of the vital principle; and, on the other hand, the organs of the soul suffer by the general feebleness of the body.

Hence the weak manifestation of the mental powers in old age, and particularly loss of memory.

But we must take care to distinguish actual want of the vital principle, from a mere deficiency of some of its individual effects: such as the power of the nerves, muscular power, irritability, susceptibility of irritation, and the power of reproduction. Some of these effects may be more or less strong. We must distinguish also the confined or defective action of the vital principle on single organs; as for example, a deficiency in the power of digestion, assimilation, sight, and in individual senses in general. In such cases, however, there may not be, upon the whole, a deficiency of the vital principle, but only a partial weakness.

§ 104.

The loss of the vital principle is irreparable. This holds good not only in regard to a total loss of this principle, that is death, but also to that state in which the vital principle is in part withdrawn from the organized body. We must, however, make a distinction between this state, and that wherein the vital principle seems to be exhausted for a certain time; as through fatigue, from labour, and violent exercise. I make use of the expression seems, because where the vital principle is absolutely exhausted, no reparation of it can take place. The vital principle cannot, like the electric matter, leave a body, and afterwards return to it, as is the case in regard to bodies to which the electric fluid has been merely communicated; for the animated body, to apply this to the vital principle, is an ideoelectric body, which contains its vital principle within itself; but this principle,

according to the nature of circumstances, manifests itself more or less, and is put into activity by being acted upon either externally or internally.

### § 105.

It is an observation of great importance, that even where there is an actual deficiency of the vital principle, the powers of the mind continue to act in full vigour. Of the truth of this observation we have striking instances in a Voltaire, a Euler, and a Frederick II. To this belongs also the retainment of the powers of memory, during the feeblest state of old age. Nothing can shew more clearly the difference between the vital principle and the soul.

### § 106.

#### 2. CONFINED ACTIVITY OF THE VITAL POWER.

This state, when the power exists, and is only prevented by impediments from manifesting itself, we may, with Brown, call indirect feebleness; and that state, on the other hand, where there is an actual deficiency of the vital principle itself, we may call direct feebleness.

### § 107.

The extreme degree of the oppressed state of the vital principle, when all external signs of life are wanting, is external or apparent death (*mors apparens*). The principal vital functions are totally suppressed, or rather confined; the circulation of the blood, respiration, all the secretions necessary for life, all separation and evacuation of things hurtful to the body, all absorption, nourishment, and digestion, all sensation and re-action of the brain, as far as we are able to observe,  
is

is totally gone; there is a general lameness of this power, an apparent stoppage of these functions, or rather, less activity.

## § 108.

There is also an apparent death of individual parts; as in lame members: the vital principle is not withdrawn; its activity only is confined; that is, the vital principle in these parts, is less active than what is necessary for the maintenance of life.

The most striking instance of this apparent death, is produced by the effects of frost.

## § 109.

There are, however, a great many other inferior degrees of the confined state of the vital principle in the whole body, as well as in single parts. To this head belong all irritation from disease, which has a particular action on the vital principle; and in general all causes which exhaust irritability, muscular power, &c. The consequences are feebleness. Those recently cured of severe diseases may here serve as an example.

Such a state may exist where the greatest possible quantity of the vital power is present. This may be seen by the effects of fear, the consequences of which are sudden rigidity, immobility, and insensibility.

## § 110.

We must not confound this state with an absolute want of the vital principle; because here reparation of the lost powers, and a return of the lost susceptibility of irritation, is possible. This return is restoration of health.

## § 111. This

## § III.

This state of indirect feeble life may, however, pass into an actual loss of life.

a) By its duration; as for example, in apparent death, when drowned persons have remained a long time in the water. It has never yet been determined, with sufficient accuracy, how long such a state can continue; but we know that apparent death, from the effects of cold, continues longer than that from any other cause.

b) By deranging the organization, and destroying its susceptibility of irritation, so that its connection with the vital principle is dissolved, and the chemical powers begin to exercise their free unconfined activity.

c) By being improperly treated; this is the case when attention is not paid to the relation between the stimulants to be employed, and the susceptibility of irritation; and when the vital principle itself is destroyed by too violent stimulants, as sometimes happens in cases of apparent death. Also, when external stimulants are withdrawn from the vital principle, and when sufficient warmth is not employed, &c.

## § 112.

Sometimes this state of indirect feebleness, passes into the state of a deficiency of the vital principle, so that the vital principle is in part withdrawn from the body. Hence, in many diseases, a complete cure is impossible. This observation is well illustrated by the diseases of individual organs; as when after diseases of the eyes, incurable defects of sight still remain. The changes effected in the organic admixture

ture by disease are so great, that the original relation of the organic component parts cannot be restored ; and, consequently, the full influence of the vital principle can no longer exercise its action.

### § 113.

In such a state, the organization has in general suffered either

a) By derangement and injury ; for example, by external violence.

b) By the loss of susceptibility for the action of the vital principle. I allude to that case where this susceptibility is irrecoverably gone.

### § 114.

#### 3. IRREGULAR ACTIVITY OF THE VITAL PRINCIPLE.

The vital principle is deranged in its action by many stimulants ; and hence the equilibrium of health is destroyed, and feebleness produced. By these means arise,

a) An unequal distribution of the vital principle, when one organ has too much of it, and another too little ; as when there is an immoderate activity of the organs of the soul, by which the other organs suffer. Hence too violent straining of the powers of thought, produce a weakness of digestion. We find also that this unequal distribution or action of the vital principle, in individual systems, is connected with injury to the other systems of the body ; as for example, immoderate excitability of the organs of the skin, when a great part of the secreted juices is carried off by perspiration, as in the English disease called  
the

the sweating sickness. We have another instance of this kind in the diabetes mellitus.

The consequence of irregular action of the vital power, is disease.

b) UNEQUAL ACTION OF THE VITAL PRINCIPLE.

When extraordinary tension takes place alternately with rest and relaxation; as for example, when a sedentary life is followed by sudden and excessive bodily motion; by which means the harmony of the whole is destroyed; individual organs are exclusively wasted, and weakness and debility ensue.

c) The degree of the ACTIVITY OF THE VITAL PRINCIPLE, comes here also into consideration.

α) IMMODERATE EXCESSIVE ACTIVITY; by which means the organization is at length worn out; its fitness for being acted upon by the vital principle is blunted, and susceptibility of irritation is lost. This activity is immoderate, when it is entirely disproportioned to the reparation; when the powers are consumed faster than they can be repaired, or, at least, are wasted in a greater degree than reparation is possible. The natural consequence is feebleness and disease. Those organs exposed to immoderate straining, are particularly affected. Of this we have an example in immoderate fatigue by violent exercise.

§ 115.

The consequences of such immoderate activity of the vital principle are the more dangerous, as they tend to exhaust life itself.

1. When the chief organs of life are immoderately exercised; as by too great exertion of the powers of thought, excessive straining of the lungs, &c. and hence



hence the danger of asthma by repeated over-straining of the lungs, through strong breathing, and many other functions of the body.

2. When several organs are overstrained at the same time; as too great exertion of the thinking faculty, connected with immoderate exertion of the bodily powers; or exercise of the powers of thought, and the powers of digestion, at the same time. Hence it is exceedingly pernicious to study immediately after meals.

β) TOO WEAK ACTIVITY OF THE VITAL PRINCIPLE.

When there is not a sufficient action of the animating principle on the organization, and consequently a want of re-action.

The feebleness thence arising, is increased when the action has a preponderance; as when the weak vital principle is acted upon by too violent stimulants. In such a state excitability is sometimes wanting; the vital principle is oppressed, and the too violent effect of the stimulants expel it from the body, before they can call it into action. In cases of extreme feebleness, therefore, great precaution must be used in employing strong stimulants.

§ 116.

Too great or too little activity of the vital principle, depends either on the general constitution of the organization, and is in some measure original; or is a consequence of a want of the necessary excitement (Brown's direct debility) as well as of too violent excitement.

§ 117.

4. DEFECTIVE CONSTITUTION OF THE ORGANIZATION.

This

This is an important cause of the asthenic state, as by this circumstance the free manifestation of the vital principle is partly impeded, and partly wrong directed. In this remark, we take into consideration both the solids and fluids of the body.

To this head, belongs a weak or strong cohesion of the component parts. The action of the vital principle, is very different on a solid fibre from what it is on a relaxed one. The feebleness of childhood is, for the most part, the consequence of relaxed fibres. The action of the vital principle, as well as that of stimulants, on the organic parts, is modified according to this state of the organization. Also great softness and want of extensibility in the fibres. Hence the different degrees of increased susceptibility of irritation.

#### § 118.

With such a defective organization, a great deal of vital principle may be present ; but the organic fibres want cohesion, consequently strength and muscular power, as is the case in children. On the other hand, where the cohesion of the fibres is stronger, there will be an equal relation between the vital principle and susceptibility of irritation.

#### § 119.

To this head belongs also the constitution of the fluids, both in regard to their consistence and admixture: thin aqueous blood, destitute of animated parts ; whether we here understand parts subject to the influence of the vital power, or those particles peculiar to the blood, which make it fit for its destination in an organized body ; for example, the oxygen of modern

modern chemistry. Something depends also on the greater or less quantity which the juices have of caloric, oxygen, or carbon. The want of these component parts of our juices, which are capable of an intimate connection with the vital principle, is the cause of a defect in the distribution of the vital power in our bodies.

The different degrees of that relation which subsists between the individual component parts of the juices, ought also to be remarked. According as this relation is equal or unequal, the action of the vital principle on the fluid parts, and the susceptibility of these parts for that principle, are modified. To the same head belong the quantity of the fluids; a want or superfluity of juices; though in the last case we admit rather an unequal distribution, or local accumulation of the juices.

#### STIMULANTS AS NECESSARY CONDITIONS OF LIFE.

##### § 120.

The necessary conditions for the maintenance of life are **STIMULANTS**. Under this term is understood every thing that contributes by its agency to our existence. But we must not comprehend under this head only those things that occasion contraction or pain, but **AGENTS** in general. Life is excited by the vital principle, as the fundamental cause of its existence; but certain relations are necessary. By these relations life is in a continual state of action and reaction. Without continued action and re-action, there can be no life.

We distinguish stimulants into external and internal. Among the former are air, heat, light, animal nourishment,

ment, &c.; among the latter the power of thought, the blood, &c.

On the relation of these stimulants to the vital power, depends the strength or feebleness of the manifestations of that power, according as it is more or less impeded by their agency.

### § 121.

In regard to vital feebleness we observe the following causes :

#### 1) WANT OF SUFFICIENT EXCITEMENT FROM THESE STIMULANTS.

Hence arises Brown's direct feebleness. There may be various degrees of this want, yet they all depend on the indispensable necessity of stimulants for the support of life. A total privation of air, renders the continuance of life impossible. A partial withdrawing of heat, lessens the activity of the vital principle. Other stimulants, such as the passion of anger, occasion an irregular activity of the vital principle. All these cases give feeble life.

### § 122.

We must, however, distinguish from the above, the want of those stimulants to which people have been accustomed. These also are the cause of feebleness; as for example, the uneasiness after leaving off old habits.

Thus brandy drinkers find themselves indisposed, when deprived of the usual allowance of their favourite liquor.

### § 123.

Feebleness and feeble life arise also from a want of INTERNAL EXCITEMENT, whether it be indispensibly necessary,

necessary, or the effect only of habit. Hence feebleness, from a slow circulation of the blood, or from a want of oxygen in the blood; also that feebleness which arises, when people who labour a great deal with the head, pass to a state of mental inactivity. In the like manner labour and activity are necessary requisites, so that people cannot be a moment idle; and languor brings on the most dangerous diseases.

## § 124.

This feebleness, from a want of excitement, is either total, or transitory and capable of being repaired.

## § 125.

It is irreparable, when the fitness of the organization for being acted upon by the vital principle is lost; or when the stimulants themselves cannot be renewed. In both cases, man never again attains to his former vital strength. Unfitness of the organization for being acted upon by the vital principle, we observe in extreme old age; feebleness, from an irreparable want of stimulants, arises, for example, when people who have been accustomed to live in pure sound air, are removed to low marshy districts.

## § 126.

Vital feebleness can, however, be removed, when the susceptibility of the organization for being acted upon by stimulants is merely oppressed; as is the case in regard to fatigue, weakness from hunger, &c.; or when the absent stimulants can be supplied, which is the case chiefly in regard to those stimulants which have become necessary through habit.

## 2. TOO VIOLENT EXCITEMENT.

## § 127.

A muscle which has been put into too violent action, becomes at length relaxed, and loses its mobility. The case is the same with the whole organized system. Too violent stimulants are prejudicial two ways :

a) By producing too great activity of the vital principle, which wears out the organization. There arises too violent an activity of all the bodily functions, the secretions and excretions, the nervous and lymphatic systems ; and hence many irregularities and diseases in the physical nature of the body, obstructions and congestions, and particularly an immoderate irritability ; in a word, quick and feeble life. This is the case with brandy drinkers, immoderate drinkers of coffee.

b) By weakening and destroying the organization ; as heating liquors, poisons which attack the stomach and other systems.

## § 128.

The immediate consequences of immoderate excitement, are :

i. On the BLOOD VESSELS, violent circulation of the blood, and consequently accumulations and obstructions in individual parts.

2. On the lymphatic system, immoderate activity in the business of absorption and secretion, assimilation and nutrition.

3. On the powers of digestion, too speedy untimely digestion ; and therefore imperfect nourishment and corruption

corruption of the juices. This is the case when people expose themselves to too violent motion after meals.

4. On the muscular powers, by too violent motion or overstraining the muscles, by which rigidity and hebetude are occasioned.

5. On the nervous system. All stimulants have a final action, either mediately or immediately, on the nerves, some in a stronger, others in a weaker degree. The consequence is immoderate irritability, sensibility, and nervous weakness.

6. On the powers of thought, by the passions, or by too great exertion of the mind. The consequence is immoderate sensibility, in regard to impressions on the organs of the soul.

§ 129.

The consequence, in general, of too violent excitement, when of the first or extreme degree, is destruction of the susceptibility of irritation. This is effected by too strong electric shocks, conveyed through the heart, which deprive the heart of this susceptibility in a moment. In the second place, when of a lower degree, it produces violent irritability, uncommon sensibility, and great mobility: the causes are mental and muscular stimulants. The consequences thence arising are flaccidity and relaxation, sluggishness, and weakness of irritability; so that a stronger degree of excitement is required to produce the necessary effects; and these symptoms are followed by hebetude, insensibility, immobility, and rigidity: susceptibility of impressions from stimulants, and all fitness of the organization for the vital principle, are lost.

## § 130.

3. TOO WEAK EXCITEMENT arises, either,

a) From the stimulants being too weak; and, on account of their nature, not sufficiently powerful to make an impression on the system: as for example; changes totally imperceptible,

b) Or from their not having sufficient action, on account of some defect in the constitution.

## § 131.

A great deal here depends on some peculiarity in the constitution, either natural or accidental. Thus many persons can bear a much greater quantity of strong liquor than others.

## § 132.

The general consequence of too weak excitement is feebleness. This feebleness arises from the inactivity of the powers. Every individual part of our body, and each separate system and organ, if less used, becomes weaker than the rest, which are kept in a state of activity. Hence the weakness of the left hand; and hence also a weak power of digestion, when the food is too delicate and light. This holds good even in regard to the whole system. A certain exercise and activity are required to call forth susceptibility, and to strengthen the powers; but for maintaining the powers continued exercise is necessary. When the usual exercise is intermitted, weakness soon follows. This holds good in general, as well as in regard to individual organs and systems. Hence the muscular weakness of people who have been long confined to bed.

## § 133. On



## § 133.

On account of the connection of the whole human system, external activity is necessary to excite and maintain the internal. For the truth of this observation, we need only pay attention to the relation between the digestive faculty and bodily motion.

## § 134.

Exercise of the powers is an excellent and necessary strengthener; but it must be continued only in a certain degree, and for a determinate period, if we wish it not to occasion too violent excitement, and consequently to become pernicious.

## § 135.

## 4. TOO LONG CONTINUED EXCITEMENT.

Even weaker excitement, by being continued too long without interruption, occasions weakness also, partly by its leaving nature no time for reparation, partly by increasing too much the activity of the vital principle, and consequently irritability, by which the organization is wasted. What before excited a higher degree of power, now produces feebleness.

## § 136.

The feebleness which ensues from too long continued excitement, is often incurable; it is the worst kind of feebleness, as susceptibility of irritation in the organization has been destroyed, as it were, by a secret poison. This cause gives rise to the most tedious and incurable diseases; it is a principal cause of consumption. Hence we may account for the

consequences of poisoning with lead continuing a whole year.

§ 137.

5. IRREGULAR EXCITEMENT.

a) Its degree arising from stimulants speedily changed in succession, when the stimulants have a strong, and sometimes a weak action on the body. Thus feebleness arises as the consequence of a restless, unsteady life.

b) The effects of contrary stimulants, such as heat and cold, following each other speedily. Thus external parts, as the skin, are destroyed by washing with warm water after they have been exposed to great cold; the enamel of the teeth is destroyed by the use of cold and hot food after each other, and even internal parts experience the same thing, as in the case of inflammation of the stomach, occasioned by drinking cold liquor when over-heated.

c) Stimulants which act in an unequal manner; that is, stimulants which have a strong action on one organ or system, and a weak action on another: for example, the unequal pressure of water in the bath. Hence the prejudicial influence of a warm bath, which admits only one half of the body, while the other is exposed to cold.

To this head belongs exclusively strong excitement of a single organ or system; as the organs of thought, the stomach; the immoderate use of food when in a state of great rest. This exclusive excitement is particularly hurtful when too strong.

Wherever there is excitement, there is always a determination of the juices thither. When the excitement is too violent, this determination becomes too strong, produces congestions, and not only weakens individual

individual parts, on which it acts, but also the whole body, as it is deprived of the necessary juices. Injudicious and excessive bleeding is attended with this injury, and also long continued and immoderate artificial evacuation by stool.

## § 138.

All these deviations from that degree of excitement necessary for maintaining life, are naturally attended with changes in the vital functions. But besides difference of constitution, there is another cause, which prevents them from producing an effect on the system proportioned to their degree; and that is **HABIT**.

## § 139.

Stimulants long continued, lose at last their activity, so that they excite either a disproportioned re-action, or no re-action at all. This is occasioned,

1. BY WEAKENED STIMULANTS. Too violent stimulants, particularly those of the highest degree, are never overcome by the force of habit, especially when they are of a nature contrary to our previous condition; such as a speedy transition from heat to cold. This will be illustrated in § 143. On the other hand, we are soon accustomed to endure the effects of moderate stimulants of a contrary nature, such as slight changes of the weather.

2. BY STIMULANTS, THE DEGREE OF WHICH IS GRADUALLY INCREASED. By these means we are at length accustomed to exceedingly strong excitement. Hence there have been people who could actually swallow poison. In the same manner we accustom ourselves to hard labour, and to bear and lift up large burthens.

3. THE NATURE OF THE CONSTITUTION, the solidity and durability of the organs, and the strength and elasticity of the fibres, must in particular be taken into consideration. Many violent stimulants are therefore overcome merely by a good constitution. Many hold out against the most obstinate diseases. This is what is called a good state from nature. The solidity of the organized parts, and particularly their cohesion, withstand the action of stimulants in such a manner, that the stimulants as it were rebound, are incapable of making an impression, and no re-action arises from their action, or at least if there be any, it is weak and insignificant, or the organization is sufficiently solid to endure the contest between action and re-action. Thus strong people withstand the most inflammatory diseases, and the inflammatory fever, treated according to the method of Sylvius.

#### ORGANIZATION AS A CONDITION OF LIFE.

##### § 140.

THE STATE OF THE ORGANIZATION IS DIFFERENT,

#### I. ACCORDING TO THE DIFFERENT PERIODS OF LIFE.

In childhood we observe more elasticity of the fibres, less resistance to impressions, and less susceptibility of irritation. To be accustomed to any thing, therefore, is easiest at this period; and it is possible for children to bear impressions which would be too much for a man. Hence it happens that the constitution of childhood can hold out under the severest diseases, and hence a greater degree of feebleness and debility can take place in children, and life

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be still present, than is possible in the constitution of manhood. By habit, continued from youth, the greatest changes from heat to cold become supportable. In a word, childhood can be accustomed to things which could not be endured at any other period of life.

2. ACCORDING TO THE EXISTING DEGREE OF CAPACITY AND SUSCEPTIBILITY OF IRRITATION, and according also to the state or tone of the organization.

Our organization, by the continual action of stimulants, is rendered capable of bearing impressions from those which are exceedingly strong, and which at last become habitual to us. In an exalted state of strength, the action of strong stimulants either makes too little impression on the system, or our bodies are strong enough to bear the contest between violent action and re-action. This will in particular be the case, when the stimulants are not such as injure the body mechanically, as burning, and the like, &c. In such a state, sensibility and susceptibility of irritation are greatly lessened. When our attention is earnestly fixed on any object, it sometimes happens that we are not disturbed by the loudest noise; and hence the *noli turbare circulos meos* of Archimedes\*. In the exalted state, produced by opium or wine, those violent stimulants, the most painful impressions, are not felt. This insensibility does not arise from a stronger

\* When Syracuse was taken by Marcellus, Archimedes was so intent on the demonstration of a geometrical problem, that he heard nothing of the noise occasioned by the assault. When one of the Roman soldiers, who found him in that state, wished to carry him to the consul, he said coolly, wait a little, and my problem will be finished, T.

stimulant destroying a weaker; but from the exalted organic tone, which is occasioned by one stimulant. In a practical view this observation is of importance, and teaches us, by producing such a state, to avert the pernicious effects of a violent or even mortal irritation from disease.

## § 141.

It is to be remarked, that by often exciting such an exalted state, and the simultaneous employment each time of a strong stimulant, power is at length acquired of bearing violent irritation, even when that state does not exist. Those who have accustomed themselves to think, amidst noise, obtain, at length, great firmness of the organs of thought. In this manner certain things become habitual to us.

## § 142.

On the other hand the irritability of the organization may be so lessened, that the re-action to the stimulant becomes too weak; and this may be PERIODICAL, or peculiar to certain times. Such a weakness is produced by fear and care, excessive evacuation of every kind, &c. In this depressed state man is not capable of bearing strong excitement, and even that to which he was before accustomed. Thus a small quantity of wine, which at other times does us no hurt, will, during such a feeble state, produce intoxication.

## H A B I T.

## § 143.

Man, it is said, can be accustomed to every thing; and even the soul as well as the body, learns, by habit,  
to

to bear the most pernicious things. But people must beware of confiding too much in habit, and of sacrificing their life and health to it imprudently. Habit cannot change the nature of pernicious things, and render them healthful. Poison will always be poison, even when it is used as daily food. The foul air of jails always weakens life, even though the unfortunate prisoner may have breathed it for years. Habit only destroys the sensibility and susceptibility of irritation against their disagreeable effects; but it does not prevent their pernicious influence on the system. The sensibility for pain is blunted; but the effect of stimulants, which excite pain, is not obviated. Habit only makes us not immediately feel the bad effects of pernicious things; but the consequences break out later, and for that reason are often the more dangerous. Of this we have a striking instance in the poison of lead. What an important warning against that inconsideration, with which young persons abandon themselves to pernicious things and habits.

## § 144.

Such pernicious habits are sometimes attended with no bad consequences, as long as the organization is in an exalted state, or as long as the powers are not weakened. The vital principle is present in sufficient quantity not to be immediately exhausted by excitement, and the body is strong enough to withstand the influence of the destructive powers. Thus the dissipated youth suffers sometimes very little from the pernicious effects of the most horrid poison, conveyed into the system by disease; but the evil often breaks out at a later period.

## § 145.

As long as the state of the organization continues the same as that during which we were subject to the action of some pernicious stimulant, we sometimes discover no traces of its effects; but as soon as this state is removed by a change of circumstances, the consequences of the pernicious stimulant begin to appear. As long as the hero remains on the field of battle, he feels no pain from the most horrid wound that can be inflicted; he continues to combat with bravery, and does not find his spirits begin to sink till he discovers the danger of death to which he is exposed. The poison of disease may remain long concealed in the body, as it is prevented from manifesting itself by certain counter-stimulants; but it soon begins to exercise its influence, either when the counter-stimulants which suppressed it cease to act, or when, by the effects of violent excitement, the counteracting power of the counter-stimulant is destroyed. Workmen in white lead-works sometimes retard the effects of the poison of the lead by the use of fat substances; but these do not entirely prevent the poison from acting on the body, and the symptoms break out when they lay aside the use of that food.

## § 146.

Habit, however, can at any rate impede the influence of pernicious things, and it particularly enables us to bear things which in certain degrees are not hurtful, such as violent heat and cold. Habit destroys re-action and strengthens the fibres. But the whole depends partly on the nature and degree of the excitement,



excitement, and partly on the state of the vital principle and organization, and in the last place on external stimulants.

### EXPLANATION OF THE TERM LIFE.

#### § 147.

Life is not a state of rest, but of incessant operation. The most perfect *perpetuum mobile*, a continual circulation of action and being, a compound of working powers maintained by one principle for one end. Every thing bodily in man is subjected to changes and alternations; every thing on which the vital principle exercises its action, is in a continual alternation of increase and decrease, of loss and reparation, of growing old, renovation and restoration. Scarcely have a few years elapsed when our substance, in regard to the bodily part, is entirely renewed, and as it were again created from the surrounding elements. The vital principle animalises every thing subject to the influence of its action, and converts it into organized parts of our bodies. The nourishment which we use is treated in this manner by the vital chemical processes, and the same is the case with all the substances of the surrounding world which have the power of acting on our bodies. Here we can observe the peculiarity of the vital principle, which establishes a difference between it and all other powers.

#### § 148.

Life consists in incessant action and re-action, excitement and re-excitement. The more uninterrupted and equal the relation between action and re-action, the freer is the operation of the vital principle in man,  
and

and the greater the sum of vitality and health. In such a state man lives the most perfect life.

§ 149.

Every deviation from this state of relation approaches more or less to feebleness and disease. This deviation is occasioned in the following ways :

a) BY WEAK ACTION AND RE-ACTION. In this state life, notwithstanding feebleness, may continue a long time, provided the action does not acquire a preponderance.

b) BY STRONG ACTION AND WEAK RE-ACTION. This is the case in regard to the effects produced by fear, anger, or any other passion, on the system, if it has been before reduced to a state of great debility. Such a depression and inability to withstand strong impressions, end sooner or later in the total extinction of life.

c) BY STRONG RE-ACTION AND WEAK ACTION. In such a state there is an immoderate degree of irritability, sensibility, mobility, and disposition to spasmodic affections. Nature sinks under the too violent activity of the vital principle, which wears out the organization.

d) BY STRONG ACTION AND STRONG RE-ACTION. This takes place in the highest degree of health ; such as that enjoyed by the ancient Athletæ, who followed a very dangerous occupation. As long as a man possesses health, with such an equal relation between vital action and re-action, he is a giant in strength, and indeed his nature requires this strength to withstand the contest between irritation of disease and the action of the vital principle, which in such a state is exceedingly

ingly strong; and by unbracing the powers subject to it destroys the health.

### § 150.

In considering life, we keep in view the following momenta, viz., the state of the vital principle and of the organization, as well as the nature of the stimulants by which it is affected. Every deviation from this usual state, and from the usual relation between these principal momenta of life is feebleness, which, according as the deviation is greater or less, becomes infirmity, and at length disease.

### § 151.

A still unexpanded life, where these principal momenta are not in full action, is imperfect feeble life.

This want of expansion is either general, or relates to individual systems or organs. Life in childhood, not completely expanded, is feeble and imperfect.

Expansion in man proceeds by degrees from the period when a child begins to walk, till that of death. Nature is first employed in the formation of the principal organs, until she has finished the plastic business of expansion at the time of complete manhood. She then labours rather intensively than extensively. Expansion after this period relates merely to conformation, and to changing and maintaining the equilibrium between the powers.

### § 152.

The conformation of individual organs is more or less retarded, the organs are expanded sooner or later, and in a greater or less degree.

This

This imperfection and feebleness of life depend,

1. ON THE WEAKNESS OF THE VITAL PRINCIPLE.

2. ON THE ORGANIZATION BEING UNFINISHED AND NOT COMPLETELY FORMED. Individual organic parts may be wanting, as in embryos; these parts may not be brought to full conformation, as in men born with mutilations, or they are not formed till a future period, as is the case with the teeth.

3. ON THE INEFFICACY OR INACTIVITY OF STIMULANTS. Thus the life of a child remains feeble, if deprived of the use of pure fresh air.

### § 153.

All these momenta form the asthenic constitution, or feebleness, debility, infirmity, and feeble life. This state is either,

a) INCREASING, as in the commencement of disease, or, in general, in the state of disposition to disease.

b) DECREASING, as in the state of convalescence.

### § 154.

FEEBLENESS is:

a) GENERAL, that is diffused throughout the whole system. In that case it forms properly the asthenic constitution.

b) LOCAL, that is, relates only to individual parts, as weakness of the eyes. In this case other organs suffer along with the feeble organ, according to the connection which subsists between them, or the whole system is attacked. By way of illustration I shall mention only diseases of the lungs, or inflammation of the eyes.

In both these cases the local feebleness is communicated to the whole frame.

Care must be taken to make an accurate distinction between general feebleness and that which is merely local. In the latter case individual organs particularly suffer, as the rectum in the flux. In a practical view this is of great importance, as symptoms and diseases are often confounded.

### § 155.

The asthenic state distinguishes itself by immoderate irritability, or hebetude and relaxation.

### § 156.

I. IRRITABILITY, IMMODERATE SENSIBILITY IN REGARD TO STIMULANTS, and therefore disproportioned strong re-action to weaker action, a great deal of sensation, so that the least stimulant produces the most violent movements.

Of this state there are a great many degrees. It may proceed so far, that the most violent effects follow from the common action of things around us. A mere breath of cold air occasions, among the negro children, convulsive movements of the mouth. It is the state of tension and spasms.

### § 157.

#### INSENSIBILITY AND HEBETUDE.

This state takes place:

a) When SUSCEPTIBILITY OF IRRITATION IS NATURALLY WANTING. This is not always a symptom of actual feeble life, but may exist where the vital power is in full vigour. We distinguish a great many degrees of this want of sensation. When it exists

in a certain degree, and relates only to certain stimulants, it may be rather an indication of great vital strength. Thus the humble rustic, who never quits his country life, is happy that he has no craving desire for many delicacies and many objects of luxury, which is a diseased state, the consequence of unnatural habits. Re-action keeps action in perfect equilibrium, so that it is no longer perceptible. Thus the strong robust man of nature, is not sensible of those rapid changes of weather which throw the inhabitant of the town into a fever. A great deal here depends on the nature of the stimulants which act on the system.

b) WHEN WANT OF SENSATION HAS BECOME HABITUAL. Here also there is not always real feebleness, but rather insensibility to stimulants, acquired by hardening.

c) BY HEBETUDE FROM THE IMMODERATE OR TOO LONG USE OF AN ORGAN, as is particularly the case in regard to the face. This hebetude is real feebleness. In general, it is the feebleness of age.

## § 158.

### 3. RELAXATION.

Relaxation, softness, atonia is,

a) NATURAL, as in childhood.

b) EXCITED, the consequence of too great activity and immoderate tension, or of relaxing means. Such a state of relaxation is either transitory, for example, after severe labour; or continual, and at length irreparable, as in old people, who have overstrained the organs of thought.

This relaxation, or atonia, manifests itself in the  
muscular

muscular fibres of the stomach and bowels, and hence accumulations of slimy matter and impurities.

Irritability, insensibility, and relaxation, may be combined in one subject, and render the asthenic constitution more complete. Hence the many contradictory phenomena in human nature. One of the chief consequences of this state is spasms, the principal cause of which is irregular re-action.

### § 159.

The asthenic constitution manifests itself by the following phenomena, both in regard to the internal and the external functions: Incapacity for severe labour, unfitness for every thing that requires a certain degree of activity, difficulty in the spiritual and physical operations; lassitude soon and easily occasioned after a small exertion of the powers, which in the sound state could be made with the greatest ease, and without any inconvenience; a sensation of weariness, oppression, heaviness of the limbs, and weakness; excessive sensibility and irritability in regard to impressions either on the mind or body. The smallest change and deviation from custom produces the most striking effects. The mind is violently agitated by all the passions, of which it becomes exceedingly susceptible; they are excited by the slightest cause. Thus the smallest degree of fear produces the most violent effects, and the least cause is sufficient to excite it. The effects of anger are likewise exceedingly violent on a feeble mind. Physical stimulants make also an uncommon impression: acute pains and violent spasms are excited by the slightest causes. This is a continued feverish state, an incessant struggle between

action and re-action: the physical and animal functions of life are deranged, and there arise congestions, contraction of the vessels, unequal activity of the vital principle in individual organs, and a quick alternation of tension and relaxation. Sometimes the appearance of the most perfect health, and the highest degree of good spirits, extraordinary cheerfulness, vivacity and easiness under labour, but every thing braced in an immoderate degree. At other times the greatest depression and lowness of spirits; incapacity for labour, sluggishness in all the functions of the body; indigestion and weakness, which proceed to debility and death-like feebleness. Of a different kind, is that insensibility and hebetude, which are the consequence of great tension, and an exhausted state of the powers, when nature is so reduced that the system can be acted upon by no stimulants but those of an exceeding violent kind, as susceptibility of irritation is destroyed. We are acquainted with the different modifications of this state, but I shall call the reader's attention only to the two principal points: either the susceptibility of irritation is suppressed periodically, and the activity of the vital principle oppressed; and hence the highest degree of this feebleness in apparent death; or the susceptibility is more or less annihilated and exhausted, with an actual want of the vital principle, and consequently direct feebleness, as in great age.

## § 160.

The asthenic state is mere vegetable life; an imperfect existence, where life hangs as it were by a thread, which is broken by the least tension. The wretched sufferers drag about their enfeebled bodies



day after day, filled with anxious care for the preservation of their existence ; and as it were in the sight of death, which already has his scythe suspended over their heads.

## § 161.

In the asthenic state great danger of disease is to be apprehended, both in regard to infection and the violence with which the disease acts.

The extraordinary irritability and sensibility of the organization makes it susceptible, in the highest degree, of external impressions. Men in this state will be soon infected by the poison of disease, even at a distance. The re-action is far too weak to withstand morbid irritation ; and the greater the irritability, a weak stimulant will not only act more speedily, and be sooner felt, but will also produce more violent movements.

Feeble persons, therefore, suffer so much the more from disease ; they are violently shaken, as it were, in the commencement ; the few remaining powers are soon exhausted, and re-action loses ground in its contest with the action of the irritation produced by the disease. In such a case, if the physician is not able to revive the re-action by artificial stimulants, death must soon ensue.

## § 162

Of a different nature is that asthenia where there is great solidity of the organized parts of the body, elasticity, extensibility, and pliability of the vessels, and consequently a strong adherence of the vital principle. In this state, notwithstanding the unequal contest between action and re-action, and notwithstanding the irregularity of the latter, and the feverish

affections and spasms which follow, life still continues. This state becomes, at length, habit, and exceeds in duration the struggle between disease and the vital principle, until the equilibrium is afterwards restored. This is effected both by natural and artificial stimulants, suitable regimen, proper attention to the state of the patient, and by medicine. A great deal, however, depends on a good state of the organs. With such a state the most inflammatory and violent diseases may be withstood. When the bodily powers begin to increase, we may always confide in the restoration of health. In this manner spasmodic affections often disappear after people have attained to full growth. In such a state, notwithstanding the severest diseases, much may be expected from the art of medicine. As this organization is particularly found in children, a little more attention to this circumstance, in a practical point of view, might furnish many hints for curing the diseases of infancy. So many improper means would not be employed to destroy this organic constitution; as for example, too strong stimulants.

### § 163,

The asthenic state is peculiar to childhood and old age, as well as to the female sex.

Feebleness may be divided into two kinds:

1. NATURAL FEEBLENESS, as it exists in the cases before mentioned. It is original, and proceeds from one generation to another by transmission; it is the general form of disease; but it may take place also in the sound state, without being particularly connected with any infirmity. In this respect it is merely a degree

degree of the constitution ; an inferior degree of strength : a relative term.

2. **EXCITED FEEBLENESS**, the consequence of disease, or produced by the accidental effect of stimulants : as such it distinguishes itself by all the symptoms of disease, and is a real morbid state.

#### § 164.

**CHILDHOOD** is the proper age of feebleness. The organization is not yet completely finished ; the vital principle is not able to exercise its free activity, and many organs are too far, while others are too little advanced in conformation ; some organic parts do not yet exist ; great softness and relaxation prevail in the whole frame. There is a deficiency of muscular power, and notwithstanding the strong action of the vital principle, there is a want also of the necessary cohesion. Sensibility and irritability exist in the highest degree ; and impressions have a speedy and easy action ; but between the action and re-action there is too great a disproportion,

#### § 165.

The greatest real strength exists in a **MIDDLE AGE**, and at that period the best relation prevails between the vital principle, the organization, and excitement. Feebleness in this state takes place only when the stimulants act too violently, and too incessantly, so that the re-action is not able to withstand them. This, therefore, is in a particular manner excited feebleness.

## § 166.

GREAT AGE is a return to childhood, and is subject to feebleness from relaxation and hebetude. The vital principle begins to be inactive, and its free operation is impeded. There is even a want of the requisite quantity of the vital principle; the organization loses its fitness for the action of this principle, and also its irritability; stimulants either excite no re-action, or produce that effect only when employed in the highest degree. Re-action, though weak, is connected with great straining, by which the vital principle itself is exhausted. The natural consequence of the relation between the vital principle and the organization being destroyed, is a perceptible change in the solid and fluid parts of the body: the former are worn out; the fibres lose their sensibility, the vessels are contracted, and the soft parts become hard; the juices no longer participate in the vital principle, and they undergo changes in regard to their component parts. The functions of the mental organs are deranged in the same degree as those of body; each suffers alternately on account of their mutual connection. The consequences of all these changes may be observed in the phenomena of that disease which we call old age.

The feebleness of age takes a direction entirely opposite to that of the feebleness of childhood: the former creeps slowly and imperceptibly to extinction and the grave; but the latter rises to strength and perfect life. The feebleness of age exhibits the following phenomena: meagreness, trembling, coldness, weakness, unfitness for every labour, frailty of all the organs of motion, deficient digestion, slow and confined

finer circulation of the blood, corruption of the juices. The mental powers are equally weakened and blunted: hence loss of memory, insensibility, peevishness, timidity. The senses become dull, the sight and hearing decrease, and the taste and smell lose their acuteness. The body refuses to be subservient to the mind, becomes helpless, heavy, abundant in earthy particles, and at length totally unfit for the habitation of a higher being.

## § 167.

The female sex are denominated the weaker sex; with what justice will be seen by the following observations: The grounds of their constitution is a high degree of atonia and relaxation, combined with a still higher of irritability. They are violently affected by external stimulants; but their action is speedy and transitory, on account of the elasticity and pliability of the fibres. Action is not sufficiently withstood by re-action. To these may be added the many sufferings arising from the condition of the sex, and the peculiar structure of the female body, &c. In this respect strong stimulants to the female sex are dangerous. Woman, thy name is Weakness! Their organization, however, possesses a wonderful degree of solidity, extensibility, and pliability. For this reason the female sex support the greatest sufferings, and particularly those of the mind, under which the male constitution would be totally oppressed: hence their great patience under pain. For the same reason they are able to withstand the most dreadful diseases; and impressions of the strongest kind become habitual to them much sooner than to the male sex. The female sex are sooner tired in opposing an insurmountable power than the

the male sex. After the last earthquake in Calabria, when the people were clearing away the ruins, the women were all found lying with their arms across their breasts, as a sign that they had resigned themselves to despair and death, without entertaining any idea of exertion; but the men were found with their arms stretched out, which shewed that they had exerted themselves to the last moment. This constitution of the organization, this persevering power of enduring sufferings, is rather a disposition to strength; but too violent stimulants, particularly sudden emotions, arising from passion, are not so easily withstood by this, so called, feeble sex, when the irritability thereby excited is too violent to be opposed by the most intensive organization.

## § 168.

The asthenic state manifests itself in a manner entirely peculiar at some periods of life, in which nature undergoes certain changes, when individual organs are formed, or differently modified. These periods are called THE PERIODS OF EXPANSION. The whole life of man is a state of expansion, conformation, change, increase, and decrease; but at certain times we observe a particular activity and change in the living nature of man, which manifest themselves by more or less striking phenomena. This takes place,

1. IN THE PERIOD OF EXPANSION IN CHILDHOOD (commonly about the second year). It is observed that children, for the most part, about this time, are feebler and more irritable than at others; that they are in an unnatural braced state, uncommonly lively, or dejected and timid. Their bodily powers thereby suffer, they are soon tired by any exertion, and make

no progress in learning to walk. All these deviations again disappear after a certain time.

2. PERIOD OF EXPANSION ABOUT THE SIXTH OR SEVENTH YEAR. This period is distinguished by speedy growth, and by a high degree of irritability and relaxation.

3. PERIOD OF EXPANSION ON ATTAINMENT TO MANHOOD. When the affections connected with this state exist in a violent degree, the asthenic form is exceedingly striking. There is a deficiency of the usual powers, and particularly great irritability and sensibility.

4. PERIOD OF EXPANSION IN OLD AGE, commonly about the fortieth or fiftieth year. This change is much more perceptible in the other sex, and distinguishes itself by a suppression of the menses, which is sometimes accompanied by very great suffering.

#### § 169.

In the diseased state asthenia, properly, constitutes the general form of the disease; for there can be no disease without feebleness; only the degrees of the feebleness are different, and their symptoms are more or less perceptible.

We make a distinction in disease between the state of actual feebleness, accompanied with evident symptoms; and that deceptive state of feebleness where there seems to be a higher degree of it than really exists. In the latter case there is rather an immoderate irritability, which must be lessened.

#### § 170.

The last disease of man, that ends in death is the highest degree of feebleness. The cause of it lies in  
an

an actual decrease of the vital principle, by which means the destruction and decomposition of the organization commence. This separation of the dead from the animated begins in individual parts, even while the chief organs enjoy the influence of the vital principle. The heart still beats when no pulse is perceptible in the wrist. But the commencement of the free action of the chemical powers in individual parts, no longer subject to the influence of the vital principle, is most perceptibly seen in the highest degree of the so called *hidroa*, as observed in France; a torpid rigidity of the limbs, by which the affected parts become gangrened, and fall in pieces from the living body: worms also are produced in the gangrened parts. People affected with this disease have been seen without legs or arms, and yet lived several weeks.

## § 171.

Asthenia ends in death, when individual organs become so weakened that the harmony of the whole is destroyed, and that they can no longer perform their office. Thus death ensues from excessive bleeding; the organs are rendered lame and incapable of discharging their functions. This lameness may be general, or relate only to individual organs, so that one organ dies after another till they all become extinct in succession.



## CHAPTER III.

## SYMPTOMS OF FEEBLE LIFE.

## § 172.

IT is of great importance to be able to know the actual state of feebleness, and to discover when it takes place. Sometimes the disease is concealed, and does not manifest itself by such striking affections as betray either a want, or a confined activity of the vital principle. Sometimes individual affections seem to indicate rather liveliness and strength. On the other hand, a total exhausted state of the powers seems to exist, though the patient may be still endowed with sufficient vital strength. Pathologists speak therefore of real and apparent feebleness. In order to avoid every dangerous mistake of this kind, care must be taken not to judge of the state of feebleness, or vital strength, from individual affections, but from several taken together; from the whole condition of the patient, and the circumstances of the disease, both past and present. There is no error in medicine attended with more melancholy consequences, than forming a rash opinion of a disease from mere symptoms, especially if conclusions are drawn from individual affections. Disease is a state which is formed not by transient phenomena, but by the whole condition of man, according to the nature of his constitution, and internal and external relations. In this point of view the common semeiotic is not sufficient.

## § 173.

The principal points to which attention must be paid, in order to distinguish real from apparent feebleness, are :

1. PRECEDING CIRCUMSTANCES, which contained the cause of feebleness; debilitating causes. Thus, for example, we can conclude on real feebleness, when a person has been born of feeble parents, has received a debilitating education, or has been exposed to a great deal of fatigue, with bad nourishment.

2. Real feebleness ensues after chronic diseases, and particularly when connected with nervous weakness, and with evacuations.

3. THE DURATION OF THE ASTHENIC STATE indicates real feebleness. The longer the diseased state continues, the more does the organization lose its fitness for the action of the vital principle; and the influence of that principle on the organization is lessened.

4. The more the vital organs themselves suffer, the greater is the actual feebleness; as for example, when the brain and system of the nerves are injured, as in nervous fevers; or the lungs, in consumption. Such a state cannot long continue; general and real asthenia must ensue.

Real asthenia will be still better discovered by the following phenomena of feeble life in general.

## § 174.

I. SHORT VIEW OF THE PREVIOUS CAUSES AND CIRCUMSTANCES WHICH MAY PRODUCE FEEBLENESS.

Under

Under this head may be classed feeble parents, bad nourishment, want of exercise, and free air; frequent and tedious disease, restless disposition of mind, a great deal of fatigue, depressing passions, care, sorrow, &c. When these and other circumstances are found united, we may with certainty conclude on the asthenic state existing (§. 215.) We must not, however, conclude too rashly from individual symptoms. In a man who has the sthenic predisposition, transient anxiety, or fatigue, will not immediately produce asthenia.

To this head belong also all general debilitating causes, which produce general feebleness in several men at the same time who live in a certain place, or at a certain period (§ 236.); as for example, an unhealthy climate, like that of Batavia; unhealthy habitations; the pernicious accumulation of a great many people in large cities; corruption of the air of every kind; and, in the last place, mode of life, luxury, and inconsiderate rage for fashion, with all the evident consequences that thence ensue.

## § 175.

### II. EXTERNAL STATE.

1. A predisposition to feebleness may be discovered even in the form of the body. An uncommonly large head, a long neck, thin projecting shoulders, a narrow depressed chest, crooked spine.

2. A swelled bloated face, an uncommonly tender transparent skin, the pupil of the eye much dilated.

3. A pale complexion. Every kind of paleness, however, does not indicate a feeble constitution, but an earth-coloured dirty paleness, which gives the face  
a diseased

a diseased, dismal, and melancholy appearance, while the furrows cannot be expanded into cheerfulness without apparent labour. Fair hair is considered as a greater sign of feebleness than dark.

4. Soft flabby flesh, which readily yields to any impression. An unequal tension of the muscles, cavities, and high parts, are externally observed in various parts of the body. The flabbiness of the muscles on the extremities is particularly perceptible.

5. When ulcers become dry and pale. Kortum gives it as a sign of the asthenic state, when, during the fever of the small pox, the inoculated pustules become pale-red, and as it were grow whitish\*.

6. The whole body has a solid jolly appearance, but on nearer inspection the flesh is observed to be swelled. The skin appears to be as it were puffed up.

7. When the nose, the hands, and the feet, become speedily cold from slight causes.

8. Immoderate corpulency, especially when it speedily increases, and is connected with relaxation of the muscles; soft spongy flesh, and a sickly pale complexion; but particularly when the patients are subject to continual shivering.

9. Extenuation, however, is in general considered as a more certain sign of feebleness; but without any other affections of consequence, in regard to the principal vital organs, when moderate, it can afford no such indication. The case, however, is different when extenuation, without any perceptible cause, such as previous disease, want of sufficient nourishment, increases with great rapidity, and proceeds to a very

\* Hufeland's Journal, vol iv. p. 309.

high degree ; when it is not stopped by removing the known causes which produced it, and when it always advances, accompanied with a strong appetite, even though the patient receives sufficient nourishment, and is exposed to no exhausting labour. The state of feebleness manifests itself still more by other circumstances, and morbid affections.

## § 176.

## III. DEFICIENCY OF MUSCULAR POWER.

Rigidity and difficulty of movement in the extremities, which proceed to lameness ; weakness of the spine ; inability to stand upright, and with firmness ; relaxation of the muscles ; and hence the falling-down of the under jaw in old people, their tottering gait, hanging of the head, crookedness of the spine, and bent form.

This feebleness of the muscular power is also temporary, after violent exercise, or great straining of individual members, as well as of the whole body in general. It is then relaxation and weariness, as we experience in the evening of every laborious day.

## § 177.

## IV. DEFICIENCY OF COHESION IN THE SOLID AND FLUID PARTS OF THE BODY.

This is particularly observed in childhood, but it is most striking in the solids. Hence the pliability of the bones, which can assume all possible shapes by twisting ; and on this depends the wretched art of the jugglers, who prepare children in this manner for performing their tricks. This cohesion is lessened also by disease. In the rickets the bones become

soft as wax, so that they can be cut through with a knife. Fractures are occasioned by a very slight blow. The period of expansion in childhood distinguishes itself by such a deficient consistence of the solids. For this reason children are sometimes backward in learning to walk.

Deficient cohesion of the fluids manifests itself by abundant hæmorrhages and watery blood.

### § 178.

#### V. TOO EARLY OR TOO LATE EXPANSION.

This circumstance is to be observed in regard to the spiritual powers as well as the physical. Premature expansion is a stronger indication of feebleness than retarded expansion.

1. Premature ripeness of the mental powers, particularly when disproportioned to that of the body.

Retarded expansion of the mental powers is seldom a sign of bodily weakness; it often arises from want of culture and exercise. It may much rather exist where the vital strength is complete.

#### 2. MANHOOD AT AN UNCOMMONLY EARLY PERIOD.

This is the consequence of debilitating stimulants, both in a moral and physical point of view. The women, who in warm climates bring forth children at ten, become barren at thirty.

Retarded expansion of manhood, under other circumstances, and accompanied with certain affections, may be a sign of a weakly constitution.

3. TOO SPEEDY GROWTH, particularly to a great height, with a thin body and flaccid muscles, connected with affections which indicate immoderate irritability and activity of all the organic machinery;  
for

for example palpitation of the heart, hæmorrhages, congestions.

4. BACKWARDNESS IN GROWTH AND IN WALKING. Too late teething indicates feebleness of the constitution. It is often the consequence of the scrophula and rickets. The cause lies in a defective consistence of the solids.

5. STATIONARY OR RETROGRADE STATE OF THE EXPANSION OF THE MENTAL OR BODILY POWERS, is also a sign of asthenia ; as in diseases, also in the period of expansion, about the time of teething, inability to walk in children which had begun to use their legs ; the loss of memory in diseases, &c.

### § 179.

#### VI. UNEQUAL AND DERANGED EXPANSION OF THE POWERS.

This is the case when individual organs do not keep pace with the whole in their conformation, being either advanced or retarded in a disproportionate degree : as for example, early expansion of the powers of thought in a feeble body. To this head belong unequal expansion of the powers of the soul and of the memory ; the judgment retarded. Nature bestows on some organs too much, and gives to others too little.

All these untimely and unequal expansions are either the work of nature or of art. In the former case they are anomalies, the consequences of general feebleness ; but in the latter, artificial feebleness, the work of perverted education. We must here call to mind the manifold causes which produce a partial conformation of the organs ; for example, the exclusive or particular use and straining of one individual organ.

## § 180.

## VII. IMPEDED ACTION OF THE POWER OF THE WILL ON THE ORGANIZATION.

To this belongs the want of power to act on the organs of motion, also weakness of the organs of thought, so far as they depend on the soul. This is the state of confined activity of the powers of the soul observed in disease and great age.

## § 181.

## VIII. IMMODERATE IRRITABILITY.

We must here recur to the difference already mentioned between real and apparent feebleness, and distinguish that irritability which is the immediate consequence of feebleness.

1. TOO GREAT IRRITABILITY OF THE ORGANS OF THE SOUL, immoderate susceptibility of mental stimulants. This takes place in persons whose minds are thrown into violent agitation by the most trifling causes, and in whom the passions manifest themselves by remarkably violent effects.

Such mental sensibility arises either from a debilitated bodily constitution, or is the consequence of too violent straining of the powers of the mind, or of external influences; as for example, the loss of memory from great heat.

2. IMMODERATE IRRITABILITY OF THE ANIMAL ORGANS. This relates to the different systems of the nerves, the vessels of excretion and secretion, the system of the skin, &c. It is sometimes nervous, and sometimes muscular irritability. The phenomena thence arising, which may be considered as signs of



feeble life, are too great sensibility for external and internal impressions from the air, weather, heat, cold, nourishment, medicine, and poisons.

We thence deduce a great many diagnostics of the asthenic state, which is thereby manifested in the most evident manner. Many people experience severe sufferings from every change of the weather, so that their bodies form real thermometers; many full grown persons are violently affected by a laxative which might be given to a child; and many are exceedingly sensible of cold, which arises from some debilitating cause; as for example, continual residence in a warm apartment. Sensibility in regard to irritation from disease, a principal symptom of feebleness, depends on the same causes. This great susceptibility relates either to all diseases in general, or only to certain morbid poisons. Many become affected by a certain cause, which on the greater part of mankind would produce no effect at all. To this head belongs, in a particular manner, susceptibility of being infected by contagion. Some are attacked by all epidemic diseases, and these people are those whose bodies have acquired a predisposition for them by debilitating causes. The more the body is debilitated, the easier it receives an impression from the poison of infection; and hence the application of debilitating means, violent bleeding, and purgation, as the supposed preventative method, is highly improper.

In the highest degree of feebleness in malignant fevers, we find also the highest degree of irritability, great effects from small causes. Hence the hiccup in persons at the point of death, exalted sensation in the senses of hearing and sight. This irritability produces a deception in feeling.

How much such an unnatural irritability is a sign of the asthenic state, may be gathered from this circumstance, that it takes place after the application of debilitating causes, the immoderate or long continued effects of violent stimulants; as for example, after the untimely or immoderate use of evacuants, and after violent or tedious diseases.

### § 182.

#### IX. A WANT OF SUFFICIENT IRRITABILITY.

This deficiency may be owing either to an actual want of irritability, or to its being only in an oppressed state. This state is directly the opposite of the former. In the case where irritability is only oppressed, we have indirect feebleness. This insensibility may relate either to the organs of the soul, or to the animal organs. In the latter case, when the free activity of the vital principle is merely oppressed, vital strength may exist. This state, in which real and apparent feebleness may be easily confounded, is distinguished by combining several symptoms taken from the whole constitution. The rules for this purpose can be established only by accurate observation of individual cases.

X. DEFICIENCY IN THE POWER OF REPRODUCTION, manifests itself either by parts which have been lost being slow in growing up, or not growing up at all, or by the slow and difficult healing of wounds. Thus ulcers are difficult to be healed, and broken bones slow in uniting, in old age. This deficiency in the power of reproduction is a more evident sign of feeble life, when neither age nor disease forms any impediment;

pediment; for example in children, or persons who in other respects are found.

### § 183.

#### XI. LOCAL FEEBLENESS OF INDIVIDUAL PARTS.

Affections which attack sometimes one part of the body and sometimes another, or which attack one part in particular, indicate feebleness in the constitution. People who are often troubled with ulcers, rheumatism, and pains in certain parts of the body, are of a weakly nature. The cause is:

1. Frequent disease in any single organ, shews that some morbid matter is wandering about through the body; as for example, the flying gout; or if the reader chooses rather, great susceptibility of the constitution for morbid irritation, which may have a speedier effect on the body, because individual organs are weakened and prepared for its reception.

2. Feebleness of individual organs, on account of the connection of the whole, is followed in a greater or less degree by general feebleness.

### § 184.

#### XII. DIFFERENT AFFECTIONS, WHICH WHEN COMBINED AND COMPARED WITH EACH OTHER, AND WITH THE CONDITION OF THE BODY, FORM SYMPTOMS OF IMPORTANCE.

1. Becoming soon fatigued by labour. We must here take into consideration the state of the body, the nature of the labour, with various other circumstances; and also previous habit.

2. Sensation of lassitude.

This sensation arises from the idea excited in the

mind by the suffering state of the organ; from the vital principle being weakened.

This sensation may be either false or real. The former is the case when the activity of the vital power is only confined by external causes, without any change having been effected in the organization.

3. Immoderate perspiration occasioned by trifling causes. This is a particular symptom\* of a weak state of the organs of the skin; but in other respects an affection of general feebleness. To this head belongs periodical perspiration, which always indicates a derangement of the lymphatic system\*.

4. Different kinds of eruption, which appear periodically, and suddenly disappear.

5. Swelling of individual parts from lymphatic accumulations.

6. Frequent bleeding at the nose.

7. Frequent fits of giddiness; giddiness suddenly coming on without bodily motion; when sitting or standing, or when looking down from a great height. At the commencement of disease, or after disease, people are much more liable to giddiness than at other times.

8. Frequent pains in the head or teeth; temporary stiffness and immobility of the limbs; numbness of individual parts.

9. Heaviness and lassitude in the limbs; a sensa-

\* A man, after a tertian fever, with which he had been attacked in the 43d year of his age, was subject to violent perspiration over his whole body, several times a day, at irregular periods, even during the severest cold of winter. About the 67th year of his age, this perspiration gradually disappeared, and he died of the dropsy in the chest.

tion of weight in the feet ; a general sensation of oppression and heaviness throughout the whole body.

10. Rheumatic affections, sometimes in one part of the body, and sometimes in another.

11. Sensations of uneasiness in the lower belly ; hypochondriac affections ; bad digestion from a deficiency in the tone of the bowels ; irregularity in the usual evacuation by stool.

12. Ulcers difficult to be healed.

13. Early infirmities of age ; and in general the affections and accidents of a greater age than that to which people have attained ; as for example, the diseases incident to manhood in childhood ; the feebleness, relaxation, and exhausted state of old age in the bloom of life. The external habit of body, mien, figure, and deportment, also indicate premature old age.

14. In regard to the state of the body and powers, disproportioned evacuations.

These are the causes as well as symptoms of feebleness in a very high degree. Under this head may be included immoderate perspiration ; bleeding, flux, and diarrhoea ; too great secretion of the brain, or seminal fluid.

15. Certain peculiar dispositions of mind.

The soul, through the sympathy of its organs, receives impressions from the sufferings of the animal organs of the body. These impressions are partly attended with, and partly destitute of a consciousness of our real situation. In the first case we are perfectly sensible of our sufferings, and can point out the seat of the pain ; in the latter we have only a confused sensation, which tells us in general that our nature suffers. In both cases this sensation affords a strong symptom  
of

of the asthenic state, to which physicians ought to pay more attention than is done in common. This sensation, which we shall call sensation of disease, may be attended with some degree of deception; but it still deserves attention.

Timidity, low spirits, and depression, especially when they come on suddenly, without any perceptible action of a mental stimulant, are owing to some deficiency in the system. The case is the same in regard to sudden fits of mirth and intemperate joy; especially when such changes in the disposition are contrary to the habitual state of the person subject to them. To this head belong the depression and anxiety in the hypochondriasis and hysterics, which often take place alternately with an opposite state of mind; also the care, timidity, anxious foresight and caution of old age.

Comfortless resignation, with the loss of every ray of hope, every spark of courage, and all susceptibility of consolation, insensibility, and stupidity, are either symptoms of extreme feebleness, and of a highly exhausted state of the vital principle, or arise from exalted, and almost more than human stoicism. A proper opinion may be formed of both these dispositions of mind, by having a knowledge of the patient, of the causes which produced these states, and of other circumstances. Those dispositions of mind produced by immoderate irritability, whether it exists in the animal or mental organs, is different. To this head belong great sensibility in regard to mental stimulants; organs of the soul subject to sudden agitation; violent emotions by the agreeable or depressing passions, speedily and easily excited; such as chagrin, peevishness, anger. The exertions of the mind, in a  
certain

certain state, when rendered highly irritable, become blunted by the resistance opposed to it, if not supported by real power, and only by a sudden movement of immoderate irritability; irregular weak re-action, excited by a violent stimulant. This exertion of strength soon ends in lassitude and debility—Of this we have an instance in the passionate exertions of weak men, as well as in children, *vana sine viribus ira*. On the other hand, when this immoderate irritability of the soul finds no re-action, or only re-action exceedingly weak, it is exalted to a very high state. In the first case the imagination creates an apparent resistance, and the passion manifests itself by cruelty, a desire of destroying and annihilating. The fear of danger from the resisting object leads to an idea that the danger may be prevented by removing and destroying the object. For this reason the greatest cruelty is found in men who are weak and timid. The most horrid cruelties in war are committed by a flying or retreating enemy.

16. Different diseases, which are the consequences of a deficiency or oppression of the vital principle, and which have a nearer relation to the suffering organization, serve as sure symptoms of the asthenic state. Of these I shall treat hereafter. We can ascertain also the existence of feeble life by certain changes in the progress of disease, which are accompanied with peculiar asthenic affections.

### § 185.

#### SYMPTOMS OF THE HIGHEST DEGREE OF FEEBLE LIFE IN ASTHENIC DISEASES.

These symptoms manifest themselves in that state which we call **MALIGNANT**, for example in malignant

nant fevers; and are the more dangerous, when without any perceptible cause they make their appearance at the commencement of a disease. To these belong an excessive degree of debility arising suddenly; giddiness, tremor, fainting often taking place from a very trifling cause; spasmodic affections; a distorted and unnatural conformation of the face; hiccup, involuntary evacuation by stool and urine; great shortness of breath, great indifference and stoicism, sudden loss of memory, stupidity, hebetude of the senses and judgment; insensibility to painful stimulants, a weak, low, quick, unequal, and intermitting pulse, coldness of the extremities.

### § 186.

We shall next describe the symptoms of feeble life according to the DIFFERENT PERIODS OF LIFE. Each period of our existence has a peculiar asthenic diathesis from the moment of our birth till death, the most remote boundary of human life. We shall distinguish from the above that asthenia, peculiar to the different ages, which is founded on the changes produced, in the course of time, by the influence of external impressions on the organization; that is on the physical nature of man. We shall here attend only to those symptoms which appear at different periods in the state of feeble life.

### § 187.

#### SYMPTOMS OF FEEBLE LIFE IN CHILDHOOD.

##### 1. IMPERFECT CONFORMATION.

This is either general, or relates to individual organs. We have an instance in children born before the proper period:



period: The uncommon smallness of the body, and particularly the head; uncommonly soft, tender limbs; retarded formation of individual parts, such as the nails, epidermis, hair on the eyebrows and eyelids; the other symptoms of feebleness, continual sleepiness, whimpering, great difficulty of breathing, aged appearance of the physiognomy.

## 2. DEFECTIVE FORMATION,

Is either an impediment in the organ to the necessary and requisite influence of the vital principle, or such a misshaped organ deranges the whole body, on account of its irregularly combined component parts, and the changed and uncommonly modified mixture of these parts which thence results. The consequences are irregularity in the circulation of the juices; derangement in the functions of the body, and in general pernicious changes in all the organs. Monsters, therefore, have a feeble life, and a short existence.

## 3. FIXED STATE OF THE VITAL PRINCIPLE, OR APPARENT DEATH.

In new born children this is an asthenic state of the highest degree, as the commencing life is in itself exceedingly feeble. Letting the blood escape from the umbilical cord, which however is very seldom necessary, is of no avail as a counter indication of asthenia, but serves only to remove what impedes the circulation of the blood. (§ 493.)

## § 188.

### SYMPTOMS OF FEEBLENESS IN CHILDREN DURING THE FIRST PERIOD OF LIFE.

1. EXTERNAL BODILY STRUCTURE. Soft, flabby flesh, loose skin, uncommonly large head, aged countenance,

tenance, pale sickly complexion, blue ring around the eyes, dull, clouded and watery eyes; weakness of the limbs; want of power in the spine to keep itself erect; weakness of the muscles of the neck, and therefore a drooping head. The consequences are a backwardness in growth and in walking.

## 2. INTERNAL STATE OF THE BODY.

Indigestion, irregularity in going to stool, swelled, hard belly, flatulencies, continual whining and crying, bad breath, abundant perspiration, great sensibility in regard to cold air.

### § 189.

#### PERIOD OF CHILDHOOD.

Retarded expansion; state of the powers, and of the external size, as in the first period, or infancy; a look still too infantile, so that a child of three years old has the appearance of a child of one year; great softness, tenderness, and relaxation in the limbs; weakness of the solids; too great softness of the bones, and therefore fractures and exostosis readily take place; weakness of the powers of digestion, great irritability and sensibility in regard to impressions, and hence susceptibility of diseases, and great sufferings from them; heaviness and lassitude, great aversion to motion, peevishness, melancholy, dulness of comprehension, want of curiosity.

### § 190.

#### PERIOD OF YOUTH.

Weakness in the powers of motion, retarded conformation of the organization, deficiency of digestion, irregular appetite, deranged nourishment of the body, and hence extenuation, hectic fever, heaviness, aptness

to be fatigued, inclination to rest, retarded growth, or immoderate growth in length, by which the body becomes exceedingly thin; melancholy, want of youthful liveliness and spirits.

### § 191.

#### PERIOD OF MANHOOD.

Impeded external and internal functions of the organization, want of power in the extremities, affections of hypocondriasis, too great irritability, and therefore an inclination to spasms; aptness to become easily tired, aversion to labour, want of cheerfulness, weakness of the mental powers, and, in general, too early a transition to old age.

### § 192.

#### PERIOD OF OLD AGE.

Old age is of itself the period of feebleness; but we observe also in this state a greater or higher degree of the symptoms of feeble life. The unavoidable natural feebleness of old age is different from that which is excited and accidental. The latter distinguishes itself by a higher degree of the natural feebleness of old age; as for example, uncommon sluggishness in the functions; great hebetude and insensibility in regard to impressions; stiffness of the muscular powers; inactivity in the power of digestion, commencing death of individual organs, deficiency or loss of the senses, confined circulation. All these shew an actual deficiency and progressive decrease of the vital principle.

### § 193.

§ 193.

In remarking the symptoms of feebleness in the different periods of life, we must take into consideration the diseases peculiar to each of these periods; as for example in children, frequent vomiting, cough, convulsions, teething, the rickets, worms, scrophula; in childhood the longer duration of these diseases; disorders of the stomach, bleeding at the nose; in youth disposition to hot and inflammatory diseases, hæmorrhages, disorders of the lungs; in manhood the gout, hæmorrhoids, hypochondriasis, and disorders of the lower belly; in old age giddiness, cough, shortness of breath, want of sleep, defluxions of the ears and eyes, pain in the kidneys, difficulty of urine, flying gout, and hence itching of the skin, and prediposition, in general, to chronic diseases.

## CHAPTER IV.

SPECIAL GROUNDS AND SYMPTOMS OF FEEBLE  
LIFE IN SOME ORGANS AND SYSTEMS.

## § 194.

EACH individual organ of animated human nature makes of itself a particular whole, yet depending on the human frame in general, and connected with it. Each organ in a certain measure has its own vital principle, which manifests in it the same phenomena as those which we observe in the human system in general: its own irritability, nervous power, muscular power, &c.; consequently each organ undergoes in its interior parts certain changes, certain peculiar modifications, according as it is acted upon by external causes. Each organ, therefore, has a peculiar state of health or disease, and hence there are diseases peculiar to the lungs, eyes, ears, &c. These peculiar changes, which take place in one organ, communicate themselves in a greater or less degree to the organization in general. This communication is determined according to the nature of the acting stimulant, as well as of the affected organ; and according to its connection with the organization in general, or individual organs of more or less importance.

It is often difficult, and sometimes impossible, to discover by symptoms whether a single organ is exclusively affected; whether the changes which take place in it affect the whole organization or only some particular

cular organs, and in what degree and on what organs they act. We are still too little acquainted with the wonderful consent of all the parts of the human frame. Some in the diseased state are liable to great modifications, so that certain organs act upon each other by sympathy, which in other cases have very little connection. In many cases that organ only in which we observe striking symptoms of disease suffers most, though the disease may in general be common: for example; in dysentery, the rectum; in inflammation of the breast, the lungs, &c.\*

## § 195.

The combination of several organs for one end, by which a certain function of human nature is performed, is called A SYSTEM. The connection of all the organic parts of the human body is called, in general, THE SYSTEM. This general system is compounded of various individual systems, which co-operate for one end; that is, to maintain life. Thus we have a nervous system, a system of the blood vessels, of the organs of digestion, the organs of breathing, &c.

## § 196.

The vital principle, which is diffused throughout the whole body, undergoes in each system, and in each organic part of that system, a peculiar modification. It is still the same vital principle; but the mode in which it manifests itself is different, according to the structure of the particular organ. Thus it

\* Roschlaub's Pathogeny, Part II. § 567. § 643.

acts in the organs of the nerves as nervous power; in the muscles as muscular power; in the organs of digestion as the digestive power. But, in general, in the whole of the organization of man, it shews itself by susceptibility of irritation and irritability; and particularly as an animating power, in animalization.

### § 197.

Each organ is distinguished by a peculiar structure in regard to the composition and admixture of its component parts; and many organs can be known from each other by their external structure. Each organ possesses a certain peculiar degree and particular modification of susceptibility for the vital principle, and the irritability thence depending. By this peculiar character it is rendered fit for the function assigned to it by nature. Thus the eye is made for seeing, and the ear for hearing (§ 33).

### § 198.

A distinction, however, must be made between the animal matter of the organization, and the vital principle acting in it. The nervous power must not be confounded with the nerves; nor the power of digestion with the stomach.

### § 199.

Diseases of the organization, whether they relate to several organs at the same time, or to one organ exclusively, are not diseases and feebleness of the vital principle, which acts in the organs, as properly speaking there are no diseases of the soul, but they are organic diseases; affections of human nature, which

arise from a changed state of the solids and fluids, excited by certain stimulants.

§ 200.

Agreeably to this observation, we shall take a view of the asthenic state of some of the principal systems in the human body.

§ 201.

Of these, the nervous system first deserves our attention. People talk a great deal of nervous weakness, without properly knowing what is meant by it. At the period when Dr. White's system was in vogue, all unnatural phenomena, and all diseases, were ascribed to the nerves. The nerves are the chief organs of the human body; the finest perhaps of the animal substances; the best fitted for the action of the vital principle, and the most susceptible of its influence; that is, of all the animal parts, the most animated. In them, therefore, are manifested the essential property of the vital principle, irritability in the highest degree. The nerves are the conductors by which the vital principle is conveyed throughout the whole body. The more an individual organ is filled with nerves, it is the more animated; as is the case with the brain and the spinal marrow.

Those changes and diseased states, generally ascribed to the nerves, are phenomena which arise from the changed action of the vital principle, as well as from certain changes in the interior part of the organization. They are affections, which relate not merely to the nerves, but to organic parts in general. We know



with certainty that, in some diseases, the nerves suffer; but we do not know to what extent. The name therefore of nervous diseases has been made by far too general. Nervous medicines (*nervina*) have a very indefinite meaning. Spirituous medicines are sometimes classed among them, and sometimes antispasmodics; and yet an emetic or laxative is sometimes a real *nervinum*. Every thing said of the braced or relaxed state of the nerves, nervous fluid, and nervous spirits, is mere hypothesis.

When we consider more narrowly the symptoms of nervous feebleness, as they are commonly laid down, we find them in general merely phenomena of too weak or immoderate irritability: we are therefore almost induced, honestly confessing our ignorance, to leave the nervous system entirely out of question, and to adhere rather to the state of the vital principle and of the organization in general. Would a practitioner lose any thing if, for example, in cases of cramp, without thinking of the nerves, he should adhere to that indication which directs him to lessen the immoderate exciting irritability, and then to repair the lost powers?

Diseases of the organ of the soul have very often been considered as affections of the nerves. There is reason, however, to think that there are no diseases in which the nerves alone are affected, though in many they suffer more or less.

According to this observation, the whole conceit respecting nervous specifics, as well as diseases merely nervous, falls to the ground.

For the farther confirmation of what has been here observed, we shall mention a few symptoms said to indi-

cate nervous feebleness. They certainly shew, in part, that the nerves are affected; but with our imperfect knowledge of the nervous system, they can supply the physician with nothing but hints that some of the chief organs of life are deranged; that a disproportion prevails between the vital principle and the organization; and, in particular, that a diseased state exists in the interior of certain organs.

THESE SYMPTOMS ARE,

1. IMMODERATE SUSCEPTIBILITY OF ALL THE PASSIONS. This properly is a disease of the organ of the soul, whether that organ is affected by stimulants, which act more intimately and in some measure immediately upon it, or by such as are communicated to it by means of the coarser animal organs.

The affections communicated to the organ of the soul, by means of the consent of the other organs and systems of the body, and the incidents thence arising, such as the changed motion of the blood, palpitation of the heart, fainting, the usual hysteric symptoms, have been commonly classed among the signs of nervous weakness; but they can be so only when combined with other signs of immoderate irritability.

2. VIOLENT ACTION OF PHYSICAL STIMULANTS. Immoderate strong effects from laxatives: spasms readily occasioned are the consequences.

It is admitted that the nerves may be either weak and highly sensible, or highly sensible and at the same time strong; also weak and possessed of little sensibility. But the signs which are supposed to denote strength or feebleness of the nervous system, are much rather signs of a general energy or atonia of organization.

The symptoms which are supposed to denote subjective asthenia of the nerves, such as frequent starting and inclination to shuddering or shivering, giddiness, hysteric head-ach, spasmodic affections, transient convulsive movements of the limbs, delicate skin, weak fatigued appearance, belong to the general signs of asthenia.

## § 202.

## ASTHENIA OF THE LYMPHATIC SYSTEM.

This system consists in a composition of organic parts, which by means of the vital principle resident in them, are destined for the business of absorption, separation, nourishment, and animalization. Irregularities and changes from the sound state in the interior of these organs, have an important influence on the system of the human body in general. A state in which either the vital principle, acting in this system, does not perfectly manifest itself, or in which changes take place in the interior of these organs, we call feebleness of the lymphatic system.

The consequences of the asthenic state of this system, which serve us at the same time as symptoms, are obstructions in the glands, contraction of the vessels, deficiency of digestion and sanguification, defective nutrition. The more accurate signs of these irregularities, we derive from the external state and external changes of the body.

## § 203.

## ASTHENIA OF THE SYSTEM OF THE BLOOD-VESSELS.

This state arises chiefly from the following causes :

1. Deficient, impeded, or irregular influence of the vital principle.

2. Deficient energy and solidity of the blood-organs.

3. Defective admixture of the blood; when the individual parts want proper cohesion; when many component parts exist in greater quantity than the sound state, and an uniform relation of the whole, will permit; and when individual component parts, being less bound by the vital principle, manifest their chemical action.

The symptoms of this diseased state of the system of the blood-vessels is well known: they may be ascertained by the pulse, and the inspection of blood taken from the patient. In asthenic diseases the pulse is weak, soft, low, and exceedingly quick. When the pulse, in the course of the disease, becomes weaker, softer, lower, and quicker, it is a bad sign. According to Weickard\*, we may conclude that the quickness of the pulse proceeds from weakness, when the heart beats hard and strong, on the hand being applied over it, while the beating in the arteries is found to be weak: also when this quickness is increased after the use of wine or strengthening medicines. A pulse of this kind often rises to 140 strokes in a minute.

The great difficulty here is to distinguish the particular affections of this system, from those of the bodily organization in general. Before the discovery of the lymphatic vessels, the empirics had only two objects to which their attention was directed, the blood and stomach: disease of the first and second ways. Some even proceeded farther, and considered the blood, in which they thought they could find both life and the soul, as the animating principle.

\* Toiletten lektüre, Part II. p. 554.

They prescribed, therefore, medicines for purifying the blood, by which they imagined they could remove the corruption in its admixture; and talked of the acridity of the blood, &c. In a word, their practice was altogether bloody.

## § 204.

## ASTHENIA OF THE ORGAN OF THE SKIN.

This organ is of more importance than many believe. We have not here a mere hide extended over our body, but a general animated organ or rather system: the connection of an infinite multitude of organic parts, all directed towards one end, and containing nerves, lymphatic and blood vessels, the whole forming the medium which connects us with surrounding nature. When changes and deviations take place, therefore, in one or more of the organs of this system or organization, what considerable influence must they not have on the state of our whole existence. We know the connection of the organs of the skin by its sympathy with various other organ and systems: as, for example, the system of digestion, the bowels, &c.

We observe,

1. THE EXTERNAL STATE OF THE SKIN: rough, thick, soft, hard, flabby, braced.

2. STATE OF SENSATION; great sensibility or hebetude. The latter sensation is the consequence of a confined or irregular action of the vital principle in the organ of the skin, which may take place even while the vital principle is in full activity in other organs.

3. DERANGED

3. DERANGED ABSORPTION AND RESORPTION. Hence obstructions and callosities in the glands of the skin; congestions in individual parts; contraction and narrowness of the vessels, which give rise to a multitude of cutaneous disorders, outbreaking, immoderate perspiration, &c. Suppression of the usual perspiration. On this changed state depend the dryness or moisture, heat or cold, of the skin.

The system of the skin, therefore, deserves the utmost attention of the physician; and those external medicines which exercise an action on it, are on that account highly worthy of notice.

### § 205.

#### ASTHENIA OF THE SYSTEM OF DIGESTION. WEAK DIGESTION.

It too often happens, that people deviate from the happy mean, and run into extremes. Sometimes all diseases are ascribed to the stomach; and sometimes, though reminded by the most lively sensations, we seem to forget that we have one. This fault arises from people considering general symptoms as symptoms of a weak stomach, and forgetting that the powers of digestion often suffer on account of the consensus of the whole frame. It happens not unfrequently that some affections, considered as symptoms of a feeble stomach, are rather forebodings of it; and indicate medicines totally different from those by which we imagine we produce a direct action on the stomach. I shall say nothing of the error of considering mere impurities, and the voiding of them, as the only symptoms of a diseased state of the powers of digestion: they are the consequences, and seldom

seldom the causes, of the diseased state of the system of digestion, and often appear, within a longer or shorter period, after some disagreeable action on this system. Artificial evacuation of them may, however, second the exertions made by nature to free the body from such useless matter; but it cannot directly remove the changed state of the system, and restore the equilibrium which has been lost. This system is an animated system.

Feebleness of the system of digestion arises partly from deficiency or irregularity in the influence and activity of the vital principle; and partly from a changed state of the organs. We then find an unnatural irritability of the stomach, either with or without the exertion of power. A weak stomach is every moment deranged in some degree in its functions, both by stimulants which have an immediate action upon it, such as food, and by those which affect it by its sympathy with other organs; for no consensus in the human body is greater than that of the stomach: it is in such intimate connection with all the other organs, that the mutual affections manifest themselves by the most striking external symptoms. The system of digestion suffers, both when disagreeable stimulants act upon other organs, and when changes take place in the interior of these organs. The other organs also are more or less affected by a diseased state of the stomach. Hence arises the great influence of a debilitated system of digestion on the whole organization; on all the external and internal functions of the body; on all the systems, and their exertions of power. The consequences of this may be seen, in a very perceptible manner, in the nervous, lymphatic blood and  
venal

venal systems. Absorption, excretion, sanguification, &c. are deranged. It is of importance, therefore, to be able to know the symptoms of a debilitated state of the system of digestion, which are exhibited more or less by affections of the stomach.

1. Belching, oppression in the region of the stomach, eructation after eating, or in the morning fasting.
2. A violent, heavy pain in the head.
3. Indolence and drowsiness immediately after meals.
4. Tongue covered with slimy matter.
5. Irregularity in going to stool; food passing in an undigested state.
6. Whole body puffed up, and particularly the lower belly.
7. Bloatedness, and bluish colour of the lower eyelid.
8. Passage of worms by stool.

Some of these affections may be observed where the state of the stomach is good, after it has been overloaded; but they become stronger symptoms of the digestive faculty being weakened, when they are observed after a very moderate meal of light food; or when they manifest themselves at other times of the day besides meals.

All those who suffer from a weak stomach are, in general, feeble, and have great irritability. Debilitated people suffer from all stimulants; but the stomach suffers first. After exposure to cold, or any other change, they are immediately attacked with looseness; the perspiration is checked, and other general affections of the system soon follow: spasms, hypochondriac and hysteric complaints; a speedy and general change of the previous state, which manifests itself  
by



by a changed physiognomy, distorted features, pale complexion, dull languid hollow eye, and blue colour of the under eye-lid.

## § 206.

## ASTHENIA OF THE SYSTEM OF RESPIRATION.

The symptoms are, a compressed narrow chest, inability to contain the breath long; short and uneasy breathing, connected with pain and constriction of the breast; feeble voice; want of breath when walking up or ascending any steep place: the well-known symptoms of asthma.

Those acquainted with the destination of the lungs, know the influence of the asthenic state of this system, and what it is to have a weak breast. The lungs very often suffer in the period of manhood\*.

## § 207.

## SYSTEM OF THE ORGANS OF GENERATION.

This system has a pre-eminent share of the vital principle, which is communicated, in particular, to its fluid parts. The diseased changes in this system excite like changes in the chief vital organs. Every thing, in general, that exalts the activity of the vital principle, has an animating effect on the generative faculty. The organs of generation contain the finest material component parts, and the vital principle seems to be accumulated in them. What, in general, produces a debilitating effect on man; what in any organ occasions a diseased change of importance, affects also the organs of generation. Hence the

\* Hufeland's *Journal der prakt. keilk.* vol. i. p. 515.

feebleness of the generative faculty when the nourishment is poor and destitute of strength; also in diseases after long continuance, and in old age. When the vital principle is particularly active in any of the other organs, the energy of the generative faculty is less; as, for example, during great exertion of the powers of thought.

Feebleness of the organs of generation may be considered as a strong symptom of the general asthenic state. Derangement of these organs is attended with general disease, feebleness, and imperfect expansion. Hufeland says, "I am acquainted with no instance of eunuchs having attained to a very great age. They always remain half men \*."

### § 208.

#### ASTHENIA OF THE ORGAN OF THE SOUL.

Though we are not acquainted with this organ, we think it proper to assume a medium, by means of which our great and immortal spirit exercises its action on the coarse bodily mass; for, out of respect to ourselves, we cannot entertain the idea of its having an immediate action in our external flesh and blood. Our nerves, according to the physiologists, have not sufficient fineness for that purpose; and, therefore, it must be an exceedingly tender intermediate kind of substance, or half body, which we hesitate with awe whether we shall call spiritual or bodily; and which, at our departure from the present world, we may perhaps carry with us as a covering for the soul, in order to retain some remembrance of our

\* Kunst das menschl. leben zu verlängern, p. 275.

darling habitation. Where this organ of the soul exists; whether it is diffused throughout the whole body, or is situated in the brain, is not yet determined, because we do not know where the seat of the soul is, or whether it actually requires a particular place of habitation. Descartes will have it to be in the pineal gland, Drelincourt in the cerebellum, and Mieg in the spinal marrow. Sömmering's hypothesis is well known\*. As we have here, however, a very convenient help to enable us to explain many of the phenomena of human nature, we shall retain the idea of an organ of the soul. Certain manifestations of our spiritual being can in no other manner be explained, unless we have recourse to materialism. The soul is unchangeable, and remains unchanged, and all the changes of our nature take place merely in the material part. The soul cannot be diseased, and can never become tired or exhausted; but it may be sensible of disease, and be affected by the state of the body: that is, it receives impressions from it. These impressions are conveyed to it more immediately through the organ of the soul, with which it has the same relation as the vital principle has with the nervous system. The organ of the soul is in a mutual connection with the other organs of the body. The affections of the other organs of the body communicate themselves to the organ of the soul, as the affections of the organ of the soul produce changes in the other organs.

The organ of the soul has its own peculiar life; its own organic mixture; and, consequently, peculiar

\* See Sömmering über das organ der Seele Königsberg, 1796.

changes may take place in this organ. We may admit, therefore, a perfect or imperfect, a natural or unnatural, a sound or a diseased state of it. The changes which take place in the interior of this organ, are in all probability effected in the following manner :

1. By the immediate influence of the soul, and therefore changes excited by ideas.

2. By external stimulants, which have a particular action on the nerves; as, for example, poison; and hence we may explain the phenomena, the insensibility, and phantasies, produced by narcotic poisons; also the speedier action of such substances on the powers of the imagination. They seem at first to produce immediately a change in the organ of the soul.

3. By internal stimulants. To this head belongs every communication of the changes produced in the systems and organs of the body; as, for example, in the circulation of the blood; in the lymphatic system, &c.

By the impressions made on the soul there arise changes in this organ, which by its means are communicated to the rest of the body. We may admit a certain gradation, according to which they are communicated more or less, sooner or later, to certain organs. Thus there arises from anger first a change in the nervous system, which we observe in the spasmodic state, and the state of exalted irritability: at a later period, the effects seem to follow in the secretion and excretion. Great changes may take place in the organ of the soul, without the other organs suffering from them in a perceptible manner. The tone of the organ of the soul may be heightened; the excitability

citability and firmness of the organs of thought may be exalted in an extraordinary degree; and, on the other hand, natural feebleness or hebetude, the consequence of immoderate irritation, may exist.

According to these preliminary observations, we can judge of the asthenic state of the soul when the tone of this organ is deranged by external causes.

The symptoms of this asthenic state are, extremely violent effects from the influence of the passions, which are disproportioned to the kind of stimulant; or insensibility to mental stimulants, hebetude.

We observe the great power of the soul over this organ, by which its mobility and irritability are periodically suspended, when the soul is particularly engaged with any idea.

§ 209.

We must mention, also, that **ASTHENIA WHICH ARISES FROM A DISPROPORTIONED RELATION OF INDIVIDUAL ORGANS TO EACH OTHER.** As the partial feebleness of a single organ communicates itself to others, the same is the case, on the other hand, with partial strength. Thus, by strengthening a single organ, we have the means of diffusing general strength throughout the whole organization, especially when this strengthening relates to a principal organ. Hence it appears, to what organs our attention ought chiefly to be directed, in order to preserve health and strength. Among these are the lungs, the stomach, the skin, and the genitals.

By an inequality in the strength of individual organs, and the different manifestations of strength or feebleness in the functions of individual systems,

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there

there arises a disproportion in the state of the whole; as, for example, when the powers of thought are exclusively exercised, the power of digestion suffers, as well as other faculties.

In this case we have the following indications for restoring the equilibrium :

1. **NEGATIVE**, by intermitting the exclusive use of the individual organ, and removing the stimulant which acts upon it. The man of study must make pauses in his mental occupations.

2. **POSITIVE**, by weakening and lessening the exalted irritability. This is effected by cold applied locally in phrenitis.

3. **BY STRENGTHENING THE OTHER ENFEEBLED ORGANS.** We must, in particular, endeavour to strengthen that organ which suffers on account of its sympathy with the afflicted organs; for example, by maintaining and strengthening the system of digestion in people who labour a great deal with the head.

In the opposite case, when an organ suffers particularly from feebleness, the indication is : To prevent the debilitating action; to employ strengthening topical medicines, which however requires great precaution, and must be done only under certain conditions; and to use weakening means in regard to those organs which, on account of the consensus, have acquired a preponderance of strength.

When individual organs suffer from an excessive degree of feebleness, so that the activity of the vital power in them is confined, other organs acquire immoderate strength; an exalted irritability, because the vital power in them is so much the more active. The  
consequence

consequence is, a general feebleness, as these organs are worn out by their immoderate degree of irritability. When one side of the body is paralytic, the action of all the powers in the other is much stronger: secretion and absorption are performed in the sound side with uncommon activity. Hence it happens, that in a return of apoplexy the disease more readily attacks the sound parts.

To restore the equilibrium thus destroyed, we must endeavour to strengthen the enfeebled organ, but at the same time to lessen the immoderate irritability of the sound organs. In cases of lameness, therefore, **STRENGTHENING TOPICAL MEDICINES** should be applied to the diseased organ, and **WEAKENING MEDICINES** to those not attacked; for example, cold fomentations. Thus, in cases of lameness, bleeding may be employed in the opposite side. Hence it may be explained, why empirics, by their random mixture of medicines, sometimes animating and sometimes debilitating, are enabled on certain occasions to effect cures (§ 427).

## CHAPTER V.

## REMOTE CAUSES OF THE ASTHENIC STATE.

## § 210.

THE immediate causes of asthenia lie in a change of the internal organization; and the question, by what means this change is produced, leads us to external stimulants, which give occasion to this internal change or derangement of the internal state.

Such derangement of the internal state can, however, take place without external influence; without causes acting externally, when we consider the organization as animated. The process of life is not eternal: the organs are at length worn out by the activity of the vital principle operating in them; they sustain, in the course of time, a loss in their irritability and sensibility, and become gradually unfit for the action of the vital principle. Thus death of the organization must ensue, even under the influence of the most favourable circumstances.

## § 211.

The remote causes act conditionally on the organization, according as it has more or less receptibility for them. This receptibility exists in the highest degree in the asthenic state. Where there is a small degree of susceptibility of irritation, external causes will produce no changes in the organization. Something, however, depends on the internal strength of the



the external stimulant. There are external causes which derange the most solid organization.

All external agents are, in general, remote causes of disease. To enumerate the whole of them, I should be obliged to write an ætiology. From the immense multitude I shall therefore select only those which leave immediately behind them an enfeebled state of the organization, and which distinguish themselves by their debilitating effects.

§ 212.

These causes may be properly divided as follows:

1. DIRECT DEBILITATING; such as cold, external violence, warm liquors.

2. INDIRECT DEBILITATING, by withdrawing the necessary stimulants; deficiency of nourishment, both in regard to quantity and quality.

§ 213.

Another division of these causes, into predisposing and accidental, may be established in theory, but it gives occasion to many practical errors, as they may be very easily confounded with each other, and particularly those which pave the way for disease with those that precede disease.

Predisposition to debility is an enfeebled constitution of the organization, which exists before the asthenic affections manifest themselves; but by means of which these affections are easily produced by external causes. Such an asthenic predisposition is, as it were, a mean state between health and disease. In theory, the line of separation between asthenia and asthenic predisposition may be drawn with a considerable

derable degree of accuracy; but in practice the diagnosis must be attended with great difficulties.

§ 214.

If the constitution is already enfeebled, debilitating stimulants act with much more violence and certainty. In that case also stimulants, which seem capable of producing little effect, occasion the greatest changes. After great fatigue, sudden fear will be attended with the most dangerous consequences.

We shall now proceed to mention a few of the principal debilitating causes.

§ 215.

The first to be considered is, DESCENT FROM ENFEEBLED PARENTS. It however frequently happens, that sickly feeble parents have strong children; but these children always come into the world feeble, and their asthenic predisposition is removed by proper treatment. The children, in particular, of those parents who have weakened their organs of generation by dissipation, or who have begot them in old age, or at an unripe period of life, bring with them into the world feebleness and disease; they have an old appearance, a wrinkled withered skin hanging loose around the bones; they suffer in a double degree from the common diseases of infancy, and the existing predisposition for disease is expanded in them by the slightest accidental cause.

Diseases of the lymphatic system, for example syphilis, scrophula, and the gout in parents, give occasion, in particular, to the asthenic state in children.

Improper conduct of the mother during pregnancy,  
when

when she exposes herself to debilitating stimulants; for example, venereal infection, the immoderate use of hot liquors, will also promote the asthenic state in the children.

The first affections and diseases of new-born children, the more they deviate from those usual at that period, inflammation of the eyes, convulsions, glandular swellings, &c. serve as evident signs of this asthenia.

§ 216.

What can tend more to weaken the vital thread, and, in general, to lay the foundation for an asthenic predisposition during life, than a DEBILITATING EDUCATION? And these bad consequences will be still more promoted by neglecting children during the first years of their life, when they are so susceptible of every stimulant, and at the same time too deficient in power for their organization to withstand properly their pernicious action; while they possess such a high degree of irritability, that the stimulants which exercise an action on them, give rise to the most violent agitation. A perverted education not only withholds the strengthening means necessary for repairing the lost powers, at an age when, on account of excessive irritability, the greatest consumption takes place; but it increases this irritability by external pernicious stimulants. These debilitating means are, bad, coarse, indigestible food; spirits, and strong beer.

A child not suckled by its mother is unfortunate, but still more so when it receives its nourishment from a diseased, consumptive, or venereal nurse. In this manner a general predisposition to feebleness, if not to

individual diseases, is transmitted. A foundation for feebleness in children is laid also by too sudden weaning, and in particular by too speedy a transition to hard undigestible nourishment. Bad nourishment is for the most part a cause of wretchedness in the nursery too much neglected; and to this may be added, want of fresh air and sufficient exercise; too much confinement within doors, too much sitting; immoderate straining of the bodily powers in running, and afterwards by improper recreations; too much tenderness by being kept too warm, relaxation, and softening by warm fomentations; also a contrary treatment, by exposing children to too much cold, in order to harden them; calling forth the powers of the mind in an imprudent manner, and, in general, by an artificial forcing of nature in regard both to the body and the mind, and by the improper treatment of the diseases of infancy. Feebleness is promoted also, and the beautiful works of nature are deformed, by bandages and narrow cloathing; the expansion of the body is retarded in order to produce a delicate figure; and the complexion of wretchedness and disease is communicated to children by depriving them of pure air. The consequences of such an education, which is too common in nurseries, may be readily conceived: the poor feeble beings tremble when exposed to the least breath of air, and not only give the physician an opportunity of studying in them all the diseases of children, but also a great number of the diseases of grown persons, which, by their natural transition to the age of childhood, are interwoven in their infantine constitutions. Such an early feebleness, where the vital principle itself has sustained a loss, is transmitted, with all its conse-

consequences, to the future periods of life. Want of irritability in the organization, and weakness in the power of all the instruments requisite for the functions of nature, such as animalization, &c. make all reparation from without useless; so that no perfect re-establishment can take place. Such beings have a feeble wretched existence; and their whole life may be called a chronic disease.

## § 217.

In regard to debilitating causes, the following observation must be added: some of these causes debilitate **POSITIVELY**, such as debilitating stimulants; and others **NEGATIVELY**, through deficiency: as for example, want of pure air; want of necessary nourishment, &c. The debilitating causes will admit of being treated here in a more cursory manner, as they are known as the general causes of disease.

## § 218.

The **AIR** by which we are surrounded may, by changes in its admixture and component parts, become an asthenic cause. We here allude in particular to the specific admixture of the air; the proportion of its component parts, by which it peculiarly produces changes in our bodies. Damp air weakens the tone of the solids, and destroys the equilibrium of the vital principle in all the organs, and particularly in the system of the nerves. When the atmosphere is damp, the most asthenic diseases prevail, such as apoplexy, lameness, dropsy, gout, nervous fevers.

Heat increases irritability, and relaxes, at the same time,

time, the tone of the fibres, when it is connected with moisture; and hence the great prevalence of nervous diseases in hot climates. Cold evidently debilitates in a certain measure, and according to the nature of the bodily constitution; when in an inferior degree it acts as a mean for carrying off heat, and in its extreme degree it produces the same effects as heat. It acts differently on a strong powerful body, from what it does on a body enfeebled by previous causes. It has been remarked in London, that far more people die during a severe than during a moderate winter.

The air, from various causes, acquires a different mixture of component parts; so that it sometimes contains more oxygen, sometimes more carbon, and sometimes more azot. It takes up the evaporations of plants and animals, either separated through a living chemical process, or disengaged by the inanimate operation of decomposition and corruption, or from evaporation during the artificial preparation of chemical bodies, or from marshes, and by these means becomes one of the greatest debilitating causes and poisons for man.

The choice of a habitation and place of residence is therefore of the utmost importance. Living in large cities, where a great many people are crowded together in a very narrow space, and surrounded by evaporations from all the kingdoms of nature, is prejudicial to health; likewise living near large lakes, morasses, quarries, and bogs; in districts often exposed to inundations, or where the air is filled with exhalations from putrid bodies. The case is the same in regard to living in confined air, that is, air which cannot be again filled with better component parts after it has become

become corrupted by breathing, as water is by long standing. Long residence therefore in a close room is pernicious, and one of the chief causes of feebleness\*.

## § 219.

Food, in a variety of ways, may be a cause of feebleness.

I. A WANT OF THAT NOURISHMENT WHICH IS NECESSARY FOR MAINTAINING LIFE. The animalized bodily matter, to support the chemical operation of life, requires reparation of that which has been lost. If this reparation is not sufficient; if it be disproportionate to the matter lost; if irritability be too violent, and the waste occasioned by the organic powers be so great, that a sufficiency of vital matter cannot be conveyed into the body, at least during this period of immoderate vital activity, feebleness is occasioned, and life consequently is shortened. The greater the deficiency in the reparation of that which has been lost, the more the powers decrease; the more morbid irritability acquires a superiority, and exercises its destructive power on the human frame. Thus, feverish affections and spasms arise as the consequences of hunger. This state proceeds so far, that at last the active power of the organs is totally exhausted, and lameness and rigidity ensue; irritability can no longer be excited, because all sensibility for stimulants in the organs is extinguished. Thus death follows from hunger.

\* To avoid being too prolix, I shall refer the reader to Sprengel's *Handbuch der Pathologie*, Leipzig, 1795, Part I. page 490. where every thing of importance respecting this subject has been carefully collected.

2. AN IMMODERATE 'QUANTITY OF NOURISHMENT, that is, disproportioned to the power of digestion and to habit, increases on the one hand irritability, and at the same time introduces corruptible matter into the body; because the excessive quantity of nourishment impedes the action of the absorbing vessels. This immoderate irritability of the organs of digestion commonly ends in lameness.

3. THE USE OF UNSOUND NOURISHMENT. Nourishment of this kind is prejudicial, either by increasing too much the activity of the vital principle, and consequently irritability and predisposition to inflammation, or by depressing it below that degree necessary for maintaining health, or by introducing pernicious matter into the body. To this head belong, in the first case, stimulating high-seasoned dishes; the immoderate use of animal food and spirituous liquors; and in the last case unnatural food, or food corrupted by its admixture, preparation, or being long kept. Among the chief causes of feebleness, are reckoned spirituous liquors, the effects of which are seen in tremor of the hands, a pale complexion, bloated face, ulcers, dropsy, gout, apoplexy, and other asthenic diseases. Among the unsound kinds of nourishment, of the second class, are too watery food; a vegetable diet while exposed to severe labour; farinaceous food; water used as a beverage to those not accustomed to it. The body obtains corrupted matter by putrid flesh, the flesh of diseased animals, unfermented beer, sour wine, unripe fruit, &c.

The vital principle of the digestive faculty is, however, able to overcome the pernicious effects which arise from the quantity and mixture of nourishment, and the business of the lymphatic system can be carried



ried on with such strength as to prevent corrupted nourishment from being communicated to the juices ; but this vital strength depends on the operation of so many different causes, that, in process of time, when such pernicious stimulants are continued, there is produced a greater relaxation of these organs, the more their powers are unnaturally excited.

Sometimes the consequences of improper diet do not appear till a late period ; but in that case they are so much the worse (§ 144.) The consequences of the daily use of lead with the food, do not shew themselves sometimes till after several years. The stomach, which in the period of health and power has long withstood unsound nourishment, or the irregular use of it, so that people begin to imagine they have accustomed themselves to such unhealthful food, displays its feebleness in declining years, and is half lamed in old age.

5. **TOO TENDER NOURISHMENT.** The powers of digestion by such nourishment acquire too little exercise ; and, for want of use, their activity becomes relaxed. A like inactivity takes place also in several other organs and systems ; as for example, weakened absorption and resorption, and there arises in particular a weakened reaction of the powers of digestion against the action of the nourishment ; so that the most violent affections of the stomach are produced by the commonest food.

To this head belongs the exclusive use of vegetable food, particularly without sufficient exercise, and to such as have not been accustomed to it from their infancy. Children who have been fed with vegetables, without the smallest addition of animal food, or the  
milk

milk of animals, are, for the most part, exceedingly feeble.

The relation between exercise and nourishment is also to be taken into consideration. By bodily labour and exercise nourishment is rendered easy of digestion.

### § 220.

One of the principal causes of feebleness is a **SEDENTARY MODE OF LIFE**. Not using the bodily powers impedes expansion of the organization; prevents the body from acquiring sufficient strength and solidity, and keeps the internal functions in a like state of inactivity. The unfortunate inclination for rest and indolence still increases the more it is gratified, and the consequence is general debility. Hence extenuation, dropsy, and cachexy. This state is the more injurious to health, when, during the general inactivity of the body, individual organs are particularly exerted; as for instance the organs of the soul.

### § 221.

**IMMODERATE SLEEP, BUT IN PARTICULAR WANT OF THE NECESSARY SLEEP**. In the first case there arises a want of the requisite irritability, obstruction of the juices, congestions, inactivity of all the functions; in the latter case, immoderate irritability, feverish affections, spasms, and consequently waste and exhaustion of the powers.

### § 222.

**IMMODERATE ACTIVITY OF THE BODILY POWERS**, by which more is consumed than can be repaired by nature;

nature; and from which, by immoderate use of the organs of motion, relaxation and lameness, are produced. Irritability is exalted in an excessive degree; and by the immoderate activity of individual organs, the whole body suffers in consequence of sympathy. Too early straining, when disproportioned to the powers, which is not even required in animals, is one of the chief causes of feebleness.

IMMODERATE ACTIVITY OF THE POWERS OF THE SOUL excites immoderate irritability in the organ of the soul, which at length ends in the relaxation, lameness, and inutility of that organ. By the relation between it and the other organs, these affections of the organ of the soul are communicated to the whole body. Too much employment, an unsteady flying from one pursuit to another, the conflict of contending passions connected with this state, and the restless necessity of continual thinking, which mars the enjoyment of exhilarating pleasures, and even sleep, are particularly prejudicial.

### § 223.

#### CARE OF THE SKIN NEGLECTED.

The importance of the organ of the skin is well known (§ 204.) Neglect of bathing, washing, and purifying the surface of the body, contributes, in a peculiar manner, to that national debility, so prevalent at present; produces derangement in the organs of the skin, irregularity in the general sensation, and great irritability or hebetude.

## § 224.

THE PASSIONS which produce an exalted activity of the soul are, in a certain degree, especially when excited by unpleasant impressions, highly debilitating. Terror, anger, fear, care, hatred, melancholy, and envy, occasion an irregular activity of the vital principle. Some of them excite immoderate irritability, and others oppress and destroy it. The consequences, in regard to all the organs, are similar to those of the most dreadful poisons. "All the passions inhabit the female body," says Rousseau, "and their violence is the greater the less they can be gratified."

## § 225.

The artificial feebleness and debility produced by sensibility carried to excess, deserve also to be mentioned. Disease of the imagination becomes at last actual disease: it is all the same whether one is really sick, or only imagines so. There are some men who, as it were, consider it indecent to be always well, and who, by their perverted mode of life, bring themselves to such a state, that their health is entirely destroyed. A pale sickly look, a dull languid eye, soft delicate limbs, disorders of the breast and stomach, inability to make any exertion, weakness and hebetude of the senses, and particularly a weakness of sight, produced by the premature use of glasses, are all consequences of affected disease among the higher classes \*. As ruddy cheeks are considered a  
sign

\* About the beginning of the present century it was a modish folly, common among ladies of quality, to affect feebleness and indisposition even to excess. Thus the Duchess of Marlborough, when

sign of rusticity, one of the first points in education is to guard against having the appearance of health: the child is carefully kept within doors, that it may not lose its pale look; it is half starved to make it appear slender, and the female sex use chalk or vinegar to give them a fair complexion.

To this head belong overstraining the imagination; exposing one's self to dangerous situations; sympathy for the sufferings of others carried to excess; filling the mind with gloomy melancholy ideas; longing for and sighing after impossibilities, the phantoms of a deranged brain; the so called fever of love; continual complaints and lamentation respecting pretended miseries; activity directed to wrong objects, which exhausts the finest powers of life to no purpose, and of which the melancholy consequences are despair, poverty, and suicide.

§ 226.

There is nothing which tends to debilitate in a greater degree, or with more certainty, than **VENEREAL DISSIPATION**: unnatural straining and weakening the organs of generation, by which the vital power itself is injured, the noblest juices of the body exhausted; irrita-

when she travelled from London to Blenheim, caused whole waggon loads of straw to be dispatched for the purpose of covering the pavement before the entrance of the inns, that her delicate ears might not be hurt by the noise of the horses and carriages. When she passed through towns where there were soldiers, a messenger was dispatched to the commanding officer, to request that he would prevent the drums from being beat during her stay. *Hist. Gemälde merkwürdiger begebenheiten berühmter menschen.* Leipzig, 1798. Vol. IV. p. 173.

irritability increased to an unnatural degree, and the power of action exceedingly weakened. All these are proofs that nature punishes no dissipation in so dreadful a manner. There are no symptoms which display in a more striking manner the utmost state of debility than those external signs exhibited by a body deranged by venereal excesses: depression of all the powers, inactivity of all the functions, both bodily and spiritual, which require any exertion; weakness of the limbs, decrease of muscular strength, hebetude of all the senses; a pale, yellowish, leaden-coloured complexion, melancholy, timidity, irresolution, loss of memory and judgment, great irritability and susceptibility of mental impressions, deranged imagination always occupied with lascivious and obscene ideas, aversion to labour, and languor in all occupations except those which relate to impure objects. The diseases which arise from this high degree of asthenia, have a direct tendency to destroy and annihilate the powers: such for example as spasms, consumption, slow fever, fainting, &c.

§ 227.

We shall mention PAIN as a cause of feebleness. Pain is exalted irritability, combined with an unpleasant sensation. Irritability exalted in an unnatural degree ends at last in relaxation and lameness. We observe,

1. The degree of the pain.
2. The kind and nature of the suffering organ.
3. The degree of the irritability and sensibility for pain.

The strength of the stimulant, or the pain-exciting cause,

cause, is not always in the same ratio with the sensation of the pain. If the pain attacks an organ, which on account of its multitude of nerves is highly sensible, and which by this great quantity of nervous power is more intimately connected with the general organization of the body, the pain, though from a weak stimulant, is exceedingly violent ; as for example, in the eye or the lungs. Pain generally occasions the greatest changes in that organ on which it more immediately acts ; but sometimes the pain is much more sensible in other organs which are connected with the irritated organ. Pain, whether bodily or mental, always excites a peculiar activity of the organ of the soul, by which the changes in the body are communicated to the powers of the imagination. This activity is excited not only by corporeal but by mental stimulants. The physical causes which excite pain may be weak, and the mental excitement violent ; and in that case the sensation of pain will be strong. Persons whose mental sensibility for bodily pain is exceedingly delicate, suffer a great deal from weak stimulants. This great mental sensibility is communicated to the body, and increases the unnatural changes in the organs. Hence there arise from weak pain-exciting causes the most violent symptoms, convulsions, &c. which only take place in others after the application of the strongest stimulants. It sometimes happens also that the soul, by great exertion of the power of the will, prevents the consequences of painful impressions on the organ of the soul ; so that the pain-exciting stimulants are not felt. This may be effected by diverting the imagination, or exciting opposite ideas. Thus a malefactor, notwithstanding the

application of the most painful torture, could not be induced to confess. He repeated incessantly the words *io ti veddo* \*; and being asked afterwards what he alluded to by them, he replied, the gallows.

The symptoms excited by the irritation of pain are signs of asthenia; convulsions and spasms, violent perspiration, bloody sweats, restlessness, horror, timidity, sighing, shortness of breath. The consequences of violent and long continued pain, whether bodily, or produced by impressions on the mind, are lassitude, weakness, exhaustion of the organs. The sensation after pain is similar to that experienced after severe labour, and proceeds to the utmost debility. Rest and strengthening medicines are necessary to restore the lost powers. This effect follows from pain, both when organized parts sustain actual injury; as by tearing the nerves, burning, pricking, &c. and when no injury is perceptible. The latter is the case not only in regard to mental but also to bodily pain. The external state of the organ is not changed; there arises only a change in its admixture, which, when the painful irritation ceases, is removed. The consequences of this irritation are either constant, as where an organ is actually annihilated, or only transitory.

#### § 228.

THE UNNECESSARY AND IMPRUDENT USE OF MEDICINE, either by the sound or the diseased, debilitates the body. Medicines excite an artificial disease, by which the existing disease is expelled; they

\* Three Italian words, which signify, I see thee. T.



occasion in the internal organs certain changes, by which the unnatural state is removed, and the natural state brought back in its stead. Now if the state of the organs be natural, and not diseased, medicines will produce a directly opposite state; and consequently render those who are in good health sick. A great deal depends also on the relation which the medicine bears to the suffering organ, and to the changed state of the interior of the organ. If a disproportion prevails in their mutual relation, so that the medicine is either too strong or too weak, or if it be continued too long when the unnatural state of the organ is removed, the disease will be either renewed, rendered worse, or prolonged, and consequently the cure retarded. From these observations some idea may be formed of the injury which must arise from a misapplication of medicine, either in the sound or the diseased state. This holds good not only in regard to medicine, but also in regard to diet: in both cases the effects on the state of the organs are the same. The consequences, therefore, are sickness, disease, and debility. To this head belong ill timed spring cures, the use of the bath, bleeding, purging, sudorifics, the so called preventative method, milk or vegetable diet when not suited to the state of the patients. Such persons, by the incessant use of medicines, become still weaker and more diseased; sensibility is blunted, and stronger stimulants are always necessary to produce changes in the body.

## § 229.

POISONS, both physical and contagious, are debilitating. Some poisons kill speedily, according to their

nature and the quantity used ; and others gradually destroy the internal organs, by which means they bring on death at a later period : as for example, the poisons of lead, copper, and quicksilver. The latter case is the consequence of poisons in general, when their effects are not counteracted by some antidote ; but they always leave behind them debility and disease, either from the poison still existing in the body, or from the organization being injured by it. Thus when the physician is so fortunate as to prevent, by his art, the sudden consequences of a strong dose of arsenic, dreadful symptoms still remain, which often produce death by a slow fever, after a period of many years. Loss of strength, cachetic appearance, irregular fits of shivering, oppression at the stomach, even after the use of light nourishment ; dryness of the skin, painful irregular stools, restlessness, depression of spirits, ulcers, night sweats, gradual decay, lethargy, and at last dropsy, debilitating sweats, and diarrhœa.

If all poisonous substances do not produce such evident symptoms, when not expelled by art from the body, they are attended with many bad affections, which are a sufficient proof of an asthenic state. We observe this state also in those cases when secret poison has been introduced into the body.

The most dreadful of these slow-working poisons is **LEAD**. The consequences of swallowing particles of lead do not often appear till after a number of years : the symptoms are heaviness at the stomach, oppression, and tension of the lower belly ; loathing of food, obstinate constiveness, spasms, fainting, slow fever, jaundice, giddiness, stiffness of the limbs, lameness, and dropsy.

dropfy \*. Like effects are produced by copper, mercury, and antimony.

Vegetable poisons, when gradually used in small portions in food, if they do not occasion sudden death, produce also the most melancholy symptoms. They act partly as narcotics, and partly in a mechanical manner on the stomach and bowels by their acridity. What can be more destructive than irritability excited in an immoderate degree, the consequences of which are stupefaction, intoxication, disposition to inflammation and destruction, by physical violence, of the organs necessary for life? What is more capable to produce the highest degree of debility, lameness that ends in death?

§ 230.

INFECTIOUS POISONS, which communicate themselves by contact, are a frequent cause of the asthenic state. In regard to the action of these poisons, we observe,

1. THE KIND AND DEGREE OF THE INFECTIOUS POISON. Some infectious matter is volatile, and some is of a coarser kind. The former communicates itself at a distance through the air and through different substances; the latter only by coming in contact with an infected person. In some infectious poisons facility of infection is occasioned by the quantity of the infectious matter present, but in general an infinitely small particle only is necessary.

2. SUBJECTIVE CAPABILITY OF INFECTION. It

\* *Die Bleiglasur des irdenen Küchengefchirres als ein hauptquelle vieler unserer krankheiten* vom Hofrath G. A. Ebel. Hannov. 1794. Though the author in some things carries his ideas too far, he is entitled to thanks for having turned the public attention to this object.

consists in a peculiar constitution of the animal body, by which it is rendered fit for receiving infection. Such a disposition exists in different bodies in different degrees, and is periodically greater or less: it depends on the vital principle, as well as on the organization. This receptibility is greater when the vital principle is unactive, and when unnatural changes take place in the organization itself, or when a predisposition for infection exists; as, for example, when the body has been debilitated by depressing affections of the mind, or by evacuations.

3. THE EXTERNAL RELATION OF CAUSES ACTING IMMEDIATELY ON THE BODY FROM WITHOUT: as, for example, the atmosphere, heat, cold. Infection, therefore, is more communicable under certain circumstances: for example, it is more easily diffused through corrupted air filled with carbon, and is far more dangerous in a hot climate, at a warm period of the year, or in apartments kept too warm. Infectious diseases, on the other hand, are far less apt to be communicated where the air is pure, and in a cold climate: they generally cease in the time of winter.

Of all diseases, those of the infectious kind debilitate the body most, and in the shortest period.

### § 231.

We shall now make a few observations on the debilitating effects of disease. Diseases weaken the body not only during the period of their attack, but they leave behind them an asthenic disposition. The greatest degree of debility, however, arises from those diseases which attack the nerves or the lymphatic system. Diseases either increase irritability in an unnatural manner,

manner, or lessen the power of action, or produce both these effects. Sometimes one effect is the consequence of another; so that, after irritability has been too violently excited, the power of action is weakened, as is the case in regard to spasms; or after a great weakening of the power of action an irregular activity of irritability ensues: as the hiccup, and convulsions of dying persons.

1. Diseases of the nervous system. Irritability, when excited in an immoderate degree, debilitates by producing an irregular activity of the vital principle. Hence the great lassitude after fits of the epilepsy.

2. Diseases of the lymphatic system weaken the admixture of the organic parts, which are thereby changed and deranged, and impediments must therefore arise to the influence of the vital principle. The scrophula, syphilis, dropfy, and cachexies of all kinds, may serve as examples. The venereal disease is the principal source of that general debility which every where prevails. Among the principal debilitating lymphatic diseases, may be reckoned those which change the internal state of the organization so much, that the asthenic predisposition is communicated by procreation; as, for example, the gout, syphilis, and scrophula. We must not, however, always admit special diseases, but a general predisposition to certain kinds of corruption. Thus a venereal predisposition, in children, manifests itself by the rickets and scrophula. It is not necessary that the parents should have been actually affected with syphilis, or any other of the so called hereditary diseases, as a general predisposition to these diseases may exist by communication

tion from one race to another through different marriages. That this predisposition to disease is not always called forth, but remains concealed, depends upon circumstances. Proper treatment will sometimes prevent this predisposition from making its appearance, or will extirpate it entirely.

Among those diseases which lessen the power of action (§ 82.) in a peculiar manner, or which withdraw the fluid parts of the body, and immediately weaken the consistence of the solids, is evacuation by stool, perspiration, urine, bleeding, semen, saliva, phlegm. Debility is a speedy consequence when such evacuation does not bear a proper relation to the nature of the body. This feebleness ends at last in lameness and death. The affections are, extenuation, desiccation of the body, paleness, shrinking of the limbs, convulsions, lethargy, rigidity. The body becomes dried and withered like a plant deprived of water.

This feebleness takes place also in regard to individual limbs from which the juices and nourishment are withdrawn, or which, by means of the consensus, are attacked or affected.

### § 232.

As if the natural debility excited by disease were not sufficient, it must be promoted also by art; by a DEBILITATING MODE OF TREATMENT. How much ought we to admire the energy of nature, or, rather if the reader chooses, the good structure and solid connexion of organic parts, which are able to withstand such a coalition of foes. Sometimes irritability is excited in an immoderate degree; and sometimes

times the power of action is weakened, both by medicines and diet; so that, in fact, more people are killed by bad physicians than by disease!

1. THE METHOD BY IMMODERATE EXCITEMENT AND STRENGTHENING. The consequences of too violent irritability are well known. By such a method a disposition to inflammation and spasmodic affections is promoted; the crises are deranged, and the salutary exertions of nature, or rather the reparation of the lost equilibrium of the powers, is impeded. To this head belongs the untimely use of opium, wine, cinchona, hot stomachics, &c. The disease is speedily suppressed, or rather confined in the body, so that a lasting unnatural state takes place in the body; a predisposition to disease which afterwards manifests itself by a variety of affections (§ 362). The consequences of checked fever, checked gonorrhœa, &c. are well known. Affections to which a predisposition exists, independently of these, then break out. If a predisposition to gout exists, it will be called forth after a checked fever, whereas it might have been perhaps lessened or extirpated by suffering the disease to pass through the usual crises. Ought not this, therefore, to shew the danger which may be occasioned by Brown's method in unskilful hands?

2. THE IMMODERATE USE OF EVACUANTS. Purging, sweating, bleeding, salivation, have all their proper periods, and those not acquainted with these excite an artificial disease of the fluids. Too violent or too long continued evacuation occasions all the bad effects announced in the preceding section (§ 231). To this head belongs too long suckling, particularly  
in

regard to feeble mothers: the consequences sometimes are, besides general feebleness, loss of memory and blindness.

§ 233.

The improper use of medicine in diseases, without paying proper regard to their relation with the disease or the constitution, or the use of them too long continued, is, in a particular manner, productive of feebleness.

§ 234.

The treatment and conduct of convalescents serve also sometimes very much to increase and promote feebleness, either by the too long continued use of medicine, or too early leaving off the means of cure; by improper evacuants, and antiphlogistic, or, on the other hand, strengthening and irritating medicines and diet, too long confinement within doors, the privation of pure air, unnecessary confinement to a warm bed, &c. Many patients can never be cured unless certain impediments are removed, unless their place of residence is changed, unless they return to their former habits, &c. or unless certain relations are altered.



## CHAPTER VI.

## NATIONAL DEBILITY. DEBILITY OF THE AGE.

Ω πίπονες κάκ' ελεγχέσθαι Ἀχαιοὶ οὐκ ἐτ' Ἀχαιοί.

HOMERI ILIAD. II. 235.

## § 235.

WHEN the before-mentioned debilitating causes attack several persons at the same time, or generally prevail in certain districts, they form a GENERAL ASTHENIC PREDISPOSITION which is the cause of the prevalent asthenic diseases. If this predisposition is found among a whole people, we call it NATIONAL DEBILITY; or if it prevails in certain ages, or among one or more generations, we speak of a DEBILITY OF THE AGE.

## § 236.

The causes of this general debility are not to be sought for so much in the climate, and the prevailing constitution of the atmosphere and weather, as in the general mode of life which several men or a whole people have adopted, and by which a particular age is distinguished. The fault, therefore, lies more in mankind themselves than in nature. In a hot climate we find the inhabitants feebler, far more irritable, and more sensible of external impressions; far more inclination to nervous diseases, earlier maturity and manhood, and in general earlier old age and a shorter duration.

duration of life than in a moderately cold climate. On the other hand, in the extreme parts of the north, the men are small, weak, and incapable of enduring severe or continued labour. The Icelanders, towards their fiftieth year, are in general asthmatic, and die before their sixtieth. The unhealthfulness of the climate of Jamaica, and Carthagera in South America, is well known. All the inhabitants have a pale meager look, as if they had just recovered from a severe disease, and the newly arrived Europeans soon assume the same complexion. The influence of the air of marshes, as well as of hot damp air, has already been mentioned (§ 218.) However, even in an unfavourable climate, a relative strength and solidity of the human constitution are possible, unless the natural evil be increased, and rendered sensible by an improper mode of life.

## § 237.

General asthenia exists rather PERIODICALLY than progressively. In opposition to the supposed still increasing debility of the human race, which is ascribed in particular, but very unjustly, to nature, to a general decay of the earth, a decrease in the productive power of our sublunary world, many objections might be made. The observations on which these assertions are founded, are drawn too much from single cases, from too circumscribed a view, and from individual ages or districts, to admit with propriety of a general conclusion. The earth is still in the same state of youth as it was a thousand years ago; and we find the same proportion, speaking in general, in all created beings in regard to size and structure; the period of human life is still the same as it was in the time of David.

David. The accounts given of the gigantic size and immense strength of men in the early ages are mere fables, as well as those given of whole nations of dwarfs. Nay, notwithstanding that general debility which prevails by an education and mode of life different from the common, hardy men are produced, who thus form exceptions to the general state of the age in which they live. But as the mode of life generally followed is at variance with nature, we find general debility among such men also.

## § 238.

This general asthenic predisposition prevails therefore merely among individual nations, and in some ages. The latter is the natural consequence of the education and mode of life of one or more generations. We learn with astonishment from history how far men individually or in society can proceed in destroying and enfeebling their natural powers. By luxury, corruption of morals, voluptuousness, and dissipation, whole nations have been converted into wretched, feeble, and delicate beings. What were the Romans in the time of the Emperor Julian? They were so enfeebled, according to Ammianus Marcellinus, that when they were sailing in their pleasure boats on the Tyber, and it happened that a sun-beam penetrated to them, they were immediately thrown into convulsions.

## § 239.

The present race, indeed, are not equal, in many respects, to their ancestors. Who can deny that, since the last century, a general decrease of strength has

has taken place among almost all the nations of Europe? But who does not see that the cause does not lie in nature, but in adventitious circumstances and relations, which it is in our power to alter? These causes are certainly worthy of our attentive examination.

## § 240.

By a mode of life, such as that which shall be hereafter delineated, mankind, for some centuries past, have, in comparison of former times, been born with a weakly constitution. Education does not improve this innate feebleness, which however it might do even where a great degree of it exists, but increases it, and lays the foundation for sickliness during the whole life. We rear tender hot-house plants in a mode which is directly at variance with nature, deprive them of proper room for their growth, of pure air, of natural heat and motion; slaves to fashion and prejudice, we form them in the extremes of cold and heat; excite their irritability in an unnatural manner, by artificial, mental, and bodily stimulants; debilitate their powers, or retard their expansion, either by rest or inactivity, or by too early and immoderate exertion; cruelly deprive the young generation of the happy innocent state of childhood, and engraft upon them the pains and sufferings of the age. In the following period, the youth is either consigned to a learned education, during which the body is totally forgotten, or he is put apprentice to some artist or tradesman, without previous care having been taken to give his body the necessary firmness and strength. In this case, violence is offered to nature.

## § 241.

The principal cause of the feebleness of the present generation, is the neglect of female education, particularly in regard to every thing that concerns bodily conformation and health. The whole of female education is contrary to nature, and tends, in a peculiar manner, to weaken and debilitate. From the period of birth, girls are kept in a state of inactivity and constraint, much more than is the case among boys, and the free expansion of their powers is impeded by lacing and confining their bodies. The female sex, at present, are educated in an inactive and sedentary state, in which they are afterwards retained during their whole lives, by fashion, convenience, or their occupations. The circle of their action is confined; they are accustomed to trifling mechanical operations, which afford no employment to the mind, so that their imagination, particularly in the solitude to which they are devoted, finds sufficient leisure to indulge in immoral ideas. As they possess great sensibility; as the organ of the soul, in females, is highly susceptible of irritation; and as their powers of imagination are easily excited by the circumstances in which they are placed, they are readily misled by enthusiasm, sensibility, and folly. Every art of luxury is exerted to gratify this unfortunate propensity, and still to increase it; health, peace of mind, domestic happiness, and many other enjoyments, are sacrificed to incessant dissipation, rage for fashion, taste for magnificence, and pride. This much to be lamented sex are torn, at too early a period, from the innocence of childhood, and placed in improper social relations: Nature, in every respect, is anticipated; maturity,

both of the mental and bodily powers, is forced before the proper time; puberty, in particular, is hastened, and every thing is distorted and corrupted, for the sake of false glare and show.

This is a melancholy but true picture of female education, particularly in the higher ranks, and which, unfortunately, by the increase of luxury, is more and more imitated among the lower classes of society. And what must be the consequences, when we suffer the most beautiful part of the human race to be corrupted in so unaccountable a manner? Will not this corruption be transmitted to our children? The debility of the Asiatic nations is, with justice, ascribed to the corrupt education of their females, who are bred up in close confinement, and accustomed to inactivity and idleness. And what else is the partial occupation of our girls, when employed with trifles and toys, which are not sufficient to keep the limbs in proper exercise, but idleness? This perverted education of the fair sex is the cause that our children, during the period of infancy, at least when they are entirely in the hands of women, are educated in a manner equally improper.

§ 242.

Our whole conduct and mode of life is calculated to promote and increase that feebleness which is born with us, and interwoven in our frame by education. This is the case not only in the higher, but even among the lower classes. A very great part of those called people of fashion are exposed to a mode of life by which the powers are either only partially exercised, or kept in total inactivity. The number of  
those

those who lead a sedentary life, exceeds almost that of those exposed to an active life of labour and business. In Germany, as many men almost are destined to the pen, the needle, the comb, and to supply the artificial wants of luxury, as to the plough, and the occupations requisite to procure the different articles of food, and the other necessaries of life. Among a great part of mankind the body remains inactive; the thinking faculty is exerted at the expence of the health, and the imagination and ingenuity are thereby put exclusively into activity, to the prejudice of the general conformation of the powers of the soul, as well as of the constitution. All bodily exertion is prevented by machinery. In great cities, men are almost ashamed to walk. There are ladies of the higher rank who will scarcely deign to touch the earth with their feet, by going a few steps into the garden. People have an aversion to every thing that requires exertion. Sedentary games have almost banished those which are connected with exercise.

There is scarcely any thing that tends more to debilitate human nature, than the unhappy passion for gaming. People spend whole nights, enchained, as it were, to the gaming-table, tormented with the most destructive passions, insatiable avarice, envy, concealed anger, hatred, and the desire of revenge.

The mode of life among the higher ranks is in direct opposition to nature and health: it is constrained and unnatural. By artificial wants, man has rendered himself unfit for his destination; he has perverted the order of things; sleep is denied its right; the whole machine is refined by immoderate culture; but by these means becomes less durable. The mind

itself is softened in the highest degree ; and in regard to every thing great or exalted, nothing remains but affected sensations. Man has been deprived of every thing manly. He is no longer a son of nature, but a frail, feeble being, the creature of fashion and convenience. His happiness does not depend on himself, but on external things ; even his health and his life seem to be productions of the world around him. So much has he lost all self-subsistence !

## § 243.

The greatest enemy of the human race is luxury, with all its unhappy consequences ; such as a rage for fashion, misdirected culture ; a restless passion for shew and splendour ; neglect of the higher duties, and even of the conformation of our best powers, amidst trifling cares for polishing and partial formation. The constant companion of luxury is prodigality, and prodigality produces poverty ; it is surrounded by an host of murdering cares, which are increased, ad infinitum, by an exalted sensibility for all the passions ; by strong participation in the fate of one's connections ; and by internal reproach. A thousand ungratified real or artificial wants keep the mind in a continual state of irritation and restless exertion.

## § 244.

POVERTY may be classed among the principal sources of human wretchedness and debility ; continual and exhausting labour ; insufficient reparation of the powers ; poor, indigestible nourishment ; care, trouble, affliction ; want of necessary relief in disease, and of those refreshing and strengthening means



which the rich enjoy in superabundance : what causes of debility, consumption of the body, and of the vital powers ! Size and strength are both lost under the burthen of poverty. Such a state is the first exposed to all diseases, which, in the hovels of the poor, rage with the most infectious virulence, and produce the greatest mortality.

## § 245.

How different is our present mode of life from that natural simplicity of our forefathers ; and how much have we encreased the wants of our appetite, for which even Europe is too small ! The most pernicious circumstance of all, is accustoming ourselves to stimulating food, spices, spirituous and warm liquors. To this we may add, that, by the thirst of gain, these liquors are adulterated, and rendered unhealthful. Brandy, coffee, and tea, are by far too much used among all classes, and, unfortunately, have been substituted in the stead of beer, which is more healthful and nourishing. Slimy food and potatoes are used in great quantities, without that exercise which is necessary to make them digestible. From the irritating properties of such food, by which the activity of the vital principle is immoderately increased, and by which congestions are occasioned, while the organization is weakened, we may account for so many people being subject to extreme nervous debility, hypochondriasis, accumulations of phlegm, and the utmost relaxation ; even while their looks and complexion display the bloom of health.

## § 246.

Intemperate living, the immoderate use of food  
M 3 and

and drink, is still becoming more general among the lower and labouring classes. The facility with which they can acquire a large sum of money at once, (though the price of labour is not always proportioned to the high price of provisions) induces them to spend their earnings in a shorter time; and as with sensual men the stomach is an important object, the pleasures of the palate are indulged to excess.

Among those things which contribute to the debility of the present race, may be reckoned the general propensity to voluptuousness, convenience, and indolence; the continual hunting after sensual enjoyments, which sometimes degenerate into brutality, and by which irritability is increased, and the organization deranged, at the same time, in the utmost degree. The imagination is incessantly inflamed by lascivious images; and the most violent stimulants are every moment exercising their pernicious action on the organs. Hence arise relaxation, excessive feebleness, unnatural sensibility, and incapacity for every thing that requires power and strength; and, on the other hand, an inclination to rest and inactivity; a continual hurrying from pleasure to pleasure, which, on account of habitual enjoyment, and being purchased without labour, instead of affording satisfaction, excites only languor and disgust. Among such relaxed and enervated beings, Graham's celestial bed, and Mesmer's magnetism, might find friends and partizans.

Under such circumstances, the tone of the organization is so exalted, that repeated stimulants are necessary to prevent complete relaxation and debility, which immediately take place when the usual stimulants

mulants are omitted. Such beings must be hatched and reared by artificial heat, like chickens; their existence depends on a weak thread, and their life shakes like a reed agitated by the wind.

## § 247.

Neglecting the care of the skin, and bathing, by which our forefathers acquired life and strength, tend the more to increase national debility, as the organ of the skin is of the utmost importance.

## § 248.

The great neglect of gymnastic exercises contributes no less to promote the same evil.

## § 249.

The many ill-chosen methods of strengthening debilitated constitutions, which are employed unconditionally, produce a quite contrary effect to what they ought. To this head belong the imprudent use of bathing, and of mineral waters; the use of fashionable medicines; also the perverted strengthening method applied to the debilitated. Nothing weakens nature so much as the imprudent use of stimulating medicines, employed after one has followed a debilitating mode of life.

## § 250.

Bodily exercise, which is so useful in general, becomes pernicious if too violent, or when employed too suddenly in alternation with a sedentary life. Violent hunting, travelling post, long continued and too lively dancing, do not certainly strengthen; and ice-cold baths are undoubtedly not proper for feeble persons.

The Anglomania, cold treatment, requires a high degree of strength not to be prejudicial. And how will the physician restore to nature that strength which can be obtained only by a prudent change of regimen? In vain will the enfeebled patient seek relief in baths and mineral springs, if they are employed merely in compliance with fashion.

## § 251.

Equally pernicious is the improper use of all medicines and nostrums, which is too common, on account of the encouragement given to quackery. The facility with which the empirics of the present period impose upon invalids, gives us reason to conclude that the number of debilitated persons is very great; for debility is credulous.

## § 252.

This national degeneration is PERIODICAL, as we are taught by the history of many countries, and leads to the destruction of kingdoms. Thus Rome fell a prey to Asiatic voluptuousness and effeminacy; but an enervated period may be followed by one more vigorous. National debility has sometimes been remedied by the desperate cure of a revolution; and it has been seen that the fault did not lie in nature: the most effeminate people, by changing their manners and mode of life, have been transformed into men of the greatest vigour. The spirit of liberty can rouse an oppressed people from their physical torpor. Dr. Rush has shewn the effects produced by the American revolution on the physical state of the inhabitants; many a barren pair became fruitful, and industry and activity were every where revived.

## § 253.

These observations may serve to shew what influence it has on the character of a people, when their rulers endeavour to preserve among them cheerfulness and contentment, with a general good disposition of mind. This disposition has the same effect in a whole nation that it has in individuals: It is best maintained by the principles of a Henry IV. who endeavoured to render the state of his kingdom so flourishing that the meanest of his subjects might afford to have a pullet in the pot on Sundays. Such a cheerful disposition may, even among an enervated people, prevent the consequences of national debility. False policy endeavours, by dazzling public festivals, to produce a transient excitement; but this is merely a palliative. I must, however, beg the reader's pardon for this digression.

## § 254.

The prevailing diseases of the present age are, for the most part, of the asthenic kind, the consequences of national debility. Far more sthenic complaints prevailed among our ancestors, such as inflammatory diseases. The form of disease has changed with each century; and, at present, it is very different from that common fifty or a hundred years ago. It has been modified by a changed method of life and conduct, and by some diseases having become habitually common, as already observed in regard to syphilis. The combination of so many and so different causes, has given rise to singular and uncommon affections, which are often in contradiction with each other. Diseases have become exceedingly complicated and obscure;  
physicians,

physicians, therefore, by so many new pathologic phenomena, which, however, properly speaking, are only individual symptoms of a general disease, have been induced to invent new names for diseases, to the great terror of the feeble; and, in regard to the physicians, they may say *oderint dum metuant*.

## § 255.

The following are the chief causes which have rendered the diseases of the present period so complicated and difficult to be defined :

1. THE CHANGED CONSTITUTION OF THE BODY. In general, it is more asthenic; and, consequently, connected with immoderate irritability, and a deficiency in the power of action. Hence the sympathy of individual organs is not only greater, but more excitable; and, on that account, there is more susceptibility of morbid infection.

2. THE GENERAL PREDISPOSITION TO DISEASE. Those diseases rooted in the organic admixture, which have poisoned whole generations; such as the venereal disease, with all its varieties.

3. CHANGED MODE OF LIFE, intemperance, luxury, &c.

4. CHANGED METHOD OF HEALING. Our heroic method, and particularly the Brunonian system, which by erroneous treatment does so much hurt, suppresses the crises, and changes the progress of disease.

## § 256.

Also the change of the constitution through the different periods of life, is disproportioned to the diseases of each period. We observe in children the  
diseases

diseases of manhood; and in manhood, the diseases peculiar to childhood. Likewise, in regard to sex, diseases which ought to belong only to females, prevalent among the men.

## § 257.

The most abundant diseases of the present period, are nervous affections of every kind, which, in particular, are produced by the slightest causes: hypochondriasis, oppression at the stomach, pain in the bowels, rheumatism, insanity, gout, lameness, ruptures, rickets, scrophula, atrophy, consumption, diseases of the mind.

## CHAPTER VII.

## ASTHENIC DISEASES.

## § 258.

ASTHENIC diseases, diseases from feebleness, are an unnatural state of the animated organization, the grounds of which lie in an asthenic predisposition to disease.

This state may be attended (*a*) either with some actual lesion of the organic parts, whether the causes be external or internal; or (*b*) a morbid change only may have taken place in the organic admixture. In the first case, the debility is permanent; in the second, only temporary. In both, the functions of the animated body are more or less weakened, and sometimes deranged.

(*a*) Severe wounds, or violent derangement of the organs, particularly lesion of the principal organs of life, as, for example, ulcers in the lungs.

(*b*) Putrid fevers, and other diseases, where restoration to health follows when the organic admixture resumes its proper state.

## § 259.

The symptoms of these diseases announce deficient energy of nature; enfeebled or oppressed activity of the vital principle; irregular, too weak, or too strong crises; peculiar affections in the principal vital organs,

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We find here, in particular, all those symptoms which shew nervous debility (§ 201.)

The chief point, in this respect, is not the name, but the form of the disease. A disease under the same name may assume the sthenic, as well as the asthenic form, as is the case with the dropsy\*. A sthenic disease also passes very often into an asthenic. Attention to this remark cannot be too strongly recommended, in order to guard against the many pernicious practical errors which arise when diseases are classed according to their names. A disease is sthenic, or asthenic, inflammatory, gastric, or nervous, according to the causes, the constitution of the patient, and other accidental circumstances.

#### § 260.

In order to form a proper idea of an asthenic disease, it will be necessary to pay attention to different circumstances, by which it acquires that form.

**I. BODILY CONSTITUTION.** Under this term are comprehended the bodily mass, form, and structure of organic parts. In a feeble or debilitated body, all diseases acquire a certain shade of asthenia. To this head belongs unexpanded, imperfect organization. Thus, the first diseases of children are, by their nature, asthenic. This is the case even with local diseases, where there is an imperfect conformation of individual organs; also when the constitution is weakened by accidental causes.

**2. AN ASTHENIC PREDISPOSITION.** This depends on a feeble state of the vital principle, as well as  
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\* Benj. Fürcht. Ziegler Diss. inaug. hydropis-aetiologium ac divisionem sistens, Lipsiæ, 1798, deserves, in particular, to be read.

of the organization (§ 101—119.) It consists in a certain external or internal state of the human frame, which announces a general debility of its nature, some time previous to the appearance of asthenic affections. This unnatural constitution of the body is attended with the greatest sensibility in regard to external debilitating causes; where this state exists, either asthenic diseases are to be expected, or the diseases which attack the human frame in this state are asthenic, or at least have a shade of asthenia.

3. THE PERIOD OF LIFE, according as it is more or less fitted for an asthenic disposition, as the first and last periods. The nearer man is to his beginning or end, the more he is subject to asthenia.

4. THE SEX. We find, in general, more asthenic diseases among women, which are rather the consequences of their mode of life, than of their bodily constitution.

5. PREVIOUS STATE. We must here take into consideration former habits and mode of life, whether tending to promote asthenia, as, for example, severe bodily labour, with food destitute of nourishment; also preceding diseases: these are either of the asthenic kind, and, therefore, announce an existing predisposition to feebleness, or by their duration and violence have debilitated the body. In such a case, the new diseases which succeed, especially if they soon follow those which preceded them, will naturally assume an asthenic form.

In general, we include here all the before-mentioned remote causes of asthenia (§ 218—234.)

6. ABSOLUTE DEBILITATING STIMULANTS give occasion to asthenic diseases, even where there is a  
asthenic

sthenic predisposition; for example, external injury, poison, violent fear.

7. THE PREVAILING ASTHENIC MORBID CONSTITUTION OF THE SEASON. Thus, in summer, there are more asthenic, and in winter more sthenic diseases.

§ 261.

In asthenic diseases we find the functions of the body more or less weakened or deranged: many of them suffer in a particular manner; and the more this is the case, or if the principal ones suffer, the greater is the degree of asthenia.

§ 262.

In asthenic diseases, in general, irritability and the power of action suffer at the same time. They are both depressed and weakened. In sthenic diseases, on the other hand, either one of them only suffers, or irritability is heightened in an immoderate degree. Thus we sometimes find enfeebled irritability, when the power of action is not weakened.

The asthenic diseases may very properly be reduced to the following classes:

1. DISEASES FROM AN EXCESS OF IRRITABILITY AND ENFEEBLED POWER OF ACTION; for example, spasms, and particularly those which arise after great exhaustion by violent pain or immoderate straining of the powers. To this head belongs the hiccup of dying persons.

2. DISEASES FROM WEAKENED POWER OF ACTION, AND DEFICIENT OR BLUNTED IRRITABILITY. To this head belong all cachexies, diseases in which the admixture of the juices is so corrupted that the organs  
lose

lose a great part of their susceptibility for stimulants, as dropsy, ulcers, by which the body either decreases, or acquires spongy bloated flesh; also obstructions in the lymphatic vessels, schirrous tumours of the glands, &c.

3. DISEASES FROM IRRITABILITY WEAKENED IN THE EXTREME DEGREE, AND WEAKENED POWER OF ACTION; for example, typhus, diseases attended with violent evacuations, flux, strong hæmorrhages, where the power of motion suffers.

4. DISEASES FROM OPPRESSED OR DESTROYED IRRITABILITY, WHEN A CERTAIN DEGREE OF THE POWER OF ACTION EXISTS; as, for example, different nervous diseases.

5. DISEASES FROM OPPRESSED IRRITABILITY, AND POWER OF ACTION; for example, fainting, and apparent death.

6. DISEASES IN WHICH THE ORGANIZATION IS MECHANICALLY OR CHEMICALLY INJURED. This injury relates either to the solids or the fluids; may arise from external as well as internal causes, from violence, or from irregularity in the bodily functions. The natural consequence, therefore, is an enfeebled state of the organization. This injury, as far as is consistent with the duration of life, may take place in individual organs. There are different degrees of it: the injury is either such that the influence of the vital principle on that organ is impeded, or rendered not totally impossible; that is, irritability and susceptibility for the vital principle are not entirely destroyed; or the organ is incapable of animation, either for a certain period, or for ever. The first case is lameness; the second death. If the influence of the  
vital

vital principle be impeded, the consequences are, irregularity in the organic functions of the part; relaxation and sluggishness of the muscular powers; lessened secretion and excretion. If the solid parts of such an organ are still soft, not completely formed, while the body is in a progressive state of growth, there easily arise from external causes, on account of the cohesion being lessened, deformities and crookedness of the bones; but, in general, a bad or disproportioned formation of individual parts will be occasioned. The most striking instance of this is afforded by the rickets; the pliability and twisting of the bones; retarded growth and conformation of the body; the unnatural formation of various parts, and even of the bowels of the lower belly; the extraordinary softness of the bones and muscular parts, and dissolved juices, as they are found after death.

An instance of chemical injury in the organization, a case where not only the influence of the vital power is more or less withdrawn from the body, but the operation of the chemical powers becomes exposed to unnatural changes, is afforded by LAMENESS. An account of the causes of this asthenic form of disease will make this mode of explanation more clear. Lameness arises both from external causes, violent derangement of organic parts, and from internal causes, which attack the nerves, the instruments of the vital principle. Lameness consists either in a deficiency of the vital principle in an organ, or in a total interruption of it; so that the lamed part is altogether separated from the animated parts of the body, and dies; as corruption, the free action of the chemical powers, then takes place. In the lamed parts, irritability, and

the power of action are lost ; and, at last, the connection of the animalized admixture with the vital principle. As long as the latter exists, a cure is possible. In general, irritability first returns, and then the power of action.

## § 263.

The idea of lameness has a greater extent than what is given to it in common ; it must be considered as a general form of disease. What takes place in regard to lameness in individual organs, is manifested in regard to the organization of the body, in general, in apparent and actual death. All the systems and organs, according to the above definition, are subject to lameness. There is a lameness, therefore, not only of the external members, a lameness of the muscular powers, but a lameness of the nervous system, of the blood-vessels, &c. also a lameness in individual organs ; of the organs of digestion, of the organ of the skin, of the organ of the soul, &c.

## § 264.

Local asthenic diseases are those which attack individual organs ; which in these have their peculiar seat, and manifest themselves under the general asthenic form. They are connected partly with mechanical, and partly chemical injury of the organs, and arise from external as well as internal causes. To this head belong tumours, ulcers, increased evacuations, hæmorrhage.

## § 265.

Most chronic diseases assume an asthenic form, as  
the

the body is weakened by the duration of the disease. Chronic disorders are called forth, in particular, from the asthenic predisposition.

## § 266.

As this work comprehends only the general asthenic state, I shall pass over the special pathology of asthenic diseases. This general sketch may be sufficient for the plan of the first part : a further illustration of the subject is reserved for a third.

## CHAPTER VIII.

RELATION OF ASTHENIA TO THE DURATION  
OF LIFE.

## § 267.

Feeble life resembles a flame which gleams weakly, either through want of nourishment, or on account of the unfavourable influence of external causes. If the quantity of nourishing matter be small, the flame will soon be extinguished, particularly when large; and if it be fanned by the air, it will consume its small stock of nourishment the sooner.

## § 268.

In general, feeble life is of shorter duration:

1. ON ACCOUNT OF ITS SMALL STOCK OF THE VITAL PRINCIPLE, WHICH IS SOON EXHAUSTED.

2. ON ACCOUNT OF THE DANGER WHICH ATTENDS A WEAK CONSTITUTION. How easily is the frail thread of life broken! Reaction is incapable of withstanding the violent action of the different powers.

3. ON ACCOUNT OF THE TOO GREAT ACTIVITY OF THE VITAL PRINCIPLE, by which the organization is internally wasted. In this case there is a speedier consumption of the small stock of the vital principle; a violent straining and waste of the organic parts themselves, especially in those organs in which the vital principle is particularly active. It is not necessary that there should be here an unnatural, irregular activity



activity of the vital principle, as in disease; for a somewhat increased activity of it, where there is feeble life, will shorten its existence.

4. ON ACCOUNT OF A DEFICIENCY OF THAT ACTIVITY OF THE VITAL PRINCIPLE NECESSARY FOR MAINTAINING LIFE. In this case the functions of life are performed in too sluggish a manner; the business of absorption, resorption, nutrition, &c. is confined, and the consequences are obstructions and congestions, which all hasten the dissolution of the animal machine. The want of activity in the vital principle may either arise from a small stock of that principle, or be occasioned by external causes, which prevent the manifestations of the vital principle, as in the case of apparent death. When this state continues too long, it at last passes into a complete cessation of life; though apparent death, or rather a pause of PERFECTLY ACTIVE LIFE, may be a cause of the longer duration of its existence. Digestion is carried on too slowly; the body is not sufficiently nourished, and too few nutritive particles are extracted from the food. Notwithstanding a desire for, and the use of food, extenuation and feebleness ensue.

5. ON ACCOUNT OF A DEFICIENCY IN THE REPARATION OF NOURISHING MATTER. This is exactly the cause why every flame must at last be extinguished. Reparation either fails entirely, or is disproportioned to the loss; so that less nutritive matter is present than the great consumption occasioned by the violent activity of the vital principle would require. Hence extenuation, desiccation, and withering of the body.

6. ON ACCOUNT OF DEBILITATING INFLUENCES the vital thread becomes, as it were, always smaller,

especially when pernicious powers continually exercise their action on life. These powers shorten life, either by too violent excitement, or by a deficiency of the excitement necessary for its duration.

Immoderate, too violent, and in particular too long continued excitement, produces an immoderate activity of the vital principle, by which the principle itself is soon exhausted. The functions also of the body are carried on with too great activity, so that an immoderate straining of the organs follows, and is accompanied with the greatest consumption of the body. Feebleness, therefore, is not only produced, but maintained, during the continuation of this immoderate excitement. Life, for its duration, requires, from time to time, stronger excitement, in order to give to the powers new activity; else the consequence will be relaxation and sluggishness. Every man requires to be roused and exhilarated by social enjoyment, that a new impulse may be communicated to the inactive machine. Such agreeable excitement, renewed periodically, affords the best means for maintaining and prolonging life. However little may be necessary for simple nature, uncorrupted by habit, yet such exhilaration and excitement cannot be altogether dispensed with. Mere changes, or small deviations from the common mode of life, act as stimulants, and prevent that relaxation and languor occasioned by continual uniformity. Civilization has multiplied these stimulants, and in an eminent degree has made them absolute wants; but they have become so to an excess highly pernicious in many persons, whose susceptibility of irritation, in regard to the more moderate stimulants, is by far too much blunted; so that exceedingly violent and strong stimulants, the greatest deviations

tions from common habit, are necessary for their enjoyment of life, and even for supporting it. Excitement from such stimulants gradually becomes habit.

A deficiency of the natural, as well as of these artificial stimulants, excites and maintains the asthenic state.

In the last place, debilitating powers act mechanically in destroying the organs; as, for example, external wounds, ulcers, caries of the bones, &c.

7. The ORGANIZATION also must be here taken into consideration. Life itself suffers by every thing which attacks the organic parts, whether the causes be external or internal, and by which these parts are either deranged and destroyed, or their cohesion is lessened; the admixture of their component parts unnaturally changed, and by these means the influence of the vital principle on these organs, the irritability and susceptibility of irritation peculiar to them are either annihilated or oppressed, or modified in a different manner. It is, however, most prejudicial to the duration of life when these changes take place in any of the principal organs. Such diseases are of short continuance, and soon end in restoration to health, or in death; for example, diseases of the lungs, diseases of the glandular parts, as cancer in the breast, &c. There are some chronic diseases, however, of these organs, which terminate sooner than the violent diseases of other organs, which do not immediately serve for the operations of life. On the other hand, such changes may take place in less animated organs: they weaken the body; and the consequences are, extenuation, great waste of the juices, and many other asthenic affections; yet life holds out for a considerable time.

The concurrence of a few or more of these debilitating causes is peculiarly dangerous to the duration of life: such, for example, as violent evacuation, where there is deficient reparation by nourishment; powerful stimulants, which excite an immoderate activity of the vital principle; and, at the same time, debilitating irregular diet. On the other hand, individual debilitating causes may be obviated by the strengthening effects of others; and under these circumstances feeble life may endure a long time. These debilitating causes tend chiefly to shorten life by their continuance; especially when no intermediate pauses for rest and reparation take place: when the action of consuming, violent stimulants is so incessantly exercised, that during the whole time, whatever may be the activity of the power of assimilation, more is lost than can be supplied.

### § 269.

But how can we explain the phenomenon, confirmed by repeated experience, that men even with an exceedingly weak constitution, and when exposed to the most debilitating causes, sometimes drag out their lives to a very long period? Their existence seems to be suspended by a single weak thread, exposed to the danger of being broken by the first agitation; and yet it continues long in that state. Many sickly, wretched, haggard, pale beings, who stalk about like ghosts, prolong their lives under these circumstances to an almost incredible period. While many a blooming youth and man, in the vigour of health, sink into the grave around them, such beings often live to a great age, even when confined to the bed of sickness with evils of every kind, and reduced to a  
state

State of desiccation like a withered plant. Their vital thread, like fine gold wire, is extended farther year after year; yet they still find pleasure in the world, and they even revive sometimes, for a certain period, and begin again to bloom and as it were to grow young. It may with justice be said, that such people have a tough life.

It is incredible under what unfavourable circumstances the life of man can continue, provided it has any where an anchor to which it may adhere. The transition from life to death, except in cases of violence, takes place very slowly. Even when a person is half dead, the principal organs still continue to live. There are men who are dying for years. The destruction of individual organs, the gradual departure of the vital principle, which is announced by hebetude, insensibility, and rigidity, what else is it than the commencement of death? And what else is death than an incurable disease?

Man is like a tree, which, as years increase, always takes deeper root in the earth. If his constitution be sound and complete, the greater will be the attachment of the vital principle: it is, as it were, so accustomed to life, that it cannot separate from it. Violent causes excepted, such a life continues very long; there is always something to which it adheres. It seems to be a principle in human nature, that old people have an aversion to leave the world; they have been so intimately connected with life, that to tear the band which unites them is painful. The last attack of death, at a great age, ends indeed very soon, because the vital power is already greatly exhausted; but the mortal disease, the *marasmus senilis*, proceeds very slowly.

In dying, the highest degree of asthenia, we always observe a strong attachment of the vital power, which is not extinguished till the complete destruction of the organism, when the thiero-chemic powers begin their free operation. Often, where we suppose death to have taken place, there is only apparent death. Sometimes the stock of vital power is so exhausted, that it is no longer able to exercise a general action in all the organs, and is only active in individual organs; or rather we do not observe it manifest itself on the surface of the body. Sometimes, also, the vital principle is in a fixed state, as in apparent death, while internal life is complete\*. This attachment of the vital principle is found in an eminent degree where the organization is well constituted; where there is great extensibility and elasticity of the fibres, and where there is an intimate and good admixture of the organic component parts. Hence we may explain why children are so long in dying.

We know, from a variety of experiments, that even in the utmost asthenia the vital principle can produce a great effect on the body, when excited by powerful stimulants. A glass of wine will revive the feeblest and most debilitated patient in a putrid fever. The most active are mental stimulants, which excite the vital principle even in those who are dying. We are told by Marcus Herz, that a man who died of a ma-

\* Apparent death, in my opinion, may not improperly be divided into the following kinds: 1. Apparent death with actual feeble and imperfect life. To this kind belong, a) the apparent death of weak, new-born children; b) the apparent death of those half dying at a very great age. 2. Apparent death when internal life is perfect. The vital principle in the interior of the organs is in full activity, though the least external trace of life is not perceptible.

lignant bilious fever, and whose last breath was already hovering round his lips, was kept alive twenty-four hours longer than otherwise would have been the case, by a friend whispering in his ear, every quarter of an hour, that an enemy, with whom a little before his illness he had been engaged in a violent quarrel, had been turned out of his office\*.

§ 270.

I shall not, I hope, wander from my object, if I here say a few words on the cause why many persons are so long in dying. It has been observed, not unfrequently, that men, notwithstanding the most severe sufferings, and even when the body is most dreadfully mutilated, when the most important organs are injured, and amidst the most frightful convulsions, in a situation which makes every man of feeling shudder, cannot die, but struggle with death day after day, and, though they have several times been actual corpses, return again to their melancholy existence. The causes are:

I. IN REGARD TO THE ORGANIZATION, complete conformation of the organic parts, in which the vital principle exercises its action unimpeded, and can distribute itself throughout them in a more perfect and uniform manner. Such an organization is attended with a greater degree of irritability. Now, if nature be chiefly employed with the conformation of the noblest parts of the body, such as the brain, where the greatest activity of the vital principle takes place, such an eminently animated organ will be a source of

\* *Marcus Herz Versuch über der Schwindel.*

life, which on that account will be desiccated the last; and this also may serve to shew why children are so long in dying.

The nature of that consistence of organic parts, capable of producing the greatest attachment of the vital principle, has been already mentioned.

The structure of the body is here also to be taken into consideration. Deformity; crookedness of the bones; a structure or form of individual parts different from the common; an uncommonly high breast, by which the lungs, in such a wide chest, have much room for dilatation, and where breathing can consequently be longer continued than when the chest is flat, &c.

2. IN REGARD TO CAPABILITY OF LIFE. The vital principle shews for many kinds of organization a very peculiar attachment, and therefore does not depart from some bodies so easily as from others. This attachment is greater also in many individual organs than in others, so that the former have life in them a long time after the latter are dead. The vital attachment is greater in those organs which contain a larger portion of nerves or blood-vessels, and consequently is greatest in the brain and the heart. But as these principal organs of life are connected with all the other organs, they always communicate their life to the rest of the body as long as any of it remains.

3. IN REGARD TO THE STIMULANTS WHICH EXERCISE AN ACTION ON THE BODY.

As long as any of the vital principle exists in the body, it will be excited by stimulants; and this will successively take place till it be completely exhausted. By this excitement a longer attachment of the vital principle



principle will be effected in individual organs than would otherwise have been the case. The instance already mentioned, (§ 269.) of death being retarded by revenge, may serve as an illustration. A like effect may be produced by physical stimulants, whether applied to the surface or to the interior parts of the body. The blood is here to be taken into consideration among the internal stimulants. By it life may be retained for a certain time.

## § 271.

We shall now return to our main object, and consider the duration of life, not only where there is an asthenic constitution of body, but also when the body is exposed to debilitating causes. A great deal, no doubt, depends on the bodily constitution, as there are some bodies that do not lose their vital principle under circumstances, which, if applied to others in a less degree, would produce mortal effects. These debilitating causes may occasion a very considerable degree of asthenia, and yet life may not disappear, or may maintain itself, in an astonishing manner, for a considerable time. It is almost incredible how much man can endure, especially when the body has been hardened by habit. Neither the most violent exercise nor the severest labour, the most acute pain nor the most inflammatory or tedious diseases, accompanied with the most dreadful symptoms; neither the violent convulsions nor contorsion of the limbs, as in St. Vitus's dance, or from the horrid pain occasioned by the surgeon's knife, or even from the greatest anguish produced by disease, as in the convulsive asthma; neither extreme extenuation, which scarcely leaves any thing  
but

but skin and bone, nor cold or heat, is able to expel life from the body, or it maintains itself for a long time, notwithstanding all these unfavourable circumstances. In the like manner, prisoners can endure pestilential air, which, even when conveyed from their clothes, is mortal to others.

The life of man supports itself in every climate, and endures the most sudden variations of temperature; old persons are found even in the unhealthy climate of Bengal. The duration of life is the same in every zone, though there are every where exceptions. Upon the whole, feebleness in general does not seem to shorten life. Even a feeble sickly life, taking every thing into consideration, continues a long time; and some men, whose mode of living was certainly not favourable to health, and which they even found prejudicial to the body, have attained to a great age. In all periods of the world there have been instances of longevity, whether mankind led the simple life of nature, or passed their days in the bosom of luxury, a prey to artificial wants. Some have even become old amidst debauchery and dissipation. That artificial life, produced by excessive luxury, under so many unnatural influences, becomes habit; so that the vital power, taken in the whole, attaches itself as long to an effeminate enervated body as to the soundest, strongest body of a sailor or soldier. No objection, however, can be hence deduced against the diætecic art; it is still certain that by such an unnatural mode of life the health is destroyed. This observation serves merely as a proof of our position.

But whence arises such disproportion between asthenia and the duration of life? Let us endeavour to resolve this problem.

## § 272.

In feeble life itself lies the cause of its duration. Where there is feeble life, there is less activity of the vital principle; consequently the consumption of the vital principle is less, and the organic parts do not suffer from violent exertion. Though the body is enfeebled, the machine hangs together, because it is never put into violent motion. The case indeed is totally different where, with debilitated organs, there is an immoderate activity of the vital principle. Where vital activity is not too great, the functions are performed more slowly, and by these means the excitement is less; the movement of the heart is slower, and muscular motion requires less exertion. On account of all these causes there is less waste of the vital principle; and its slender stock is economically used, so that it holds out longer than when the body is strong and robust, with immoderate vital activity.

## § 273.

Another cause of the duration of feeble life is the **STRONG POWER OF RESTORATION**, by which the loss is soon repaired, and repaired well and simultaneously. In this case there is a perfect activity of the systems of digestion and absorption, though the consumption is very great. Thus, notwithstanding every debilitating cause, life may hold out for a considerable time.

## § 274.

If animalization and assimilation be carried on well, and if the nourishment be easily and soon converted into organic and component parts, life, even when  
there

there is little accession, either externally or internally, will continue a long time, if the means of support be sparingly used.

## § 275.

LESSENED SUSCEPTIBILITY OF IRRITATION is beneficial for maintaining feeble life. The action of external debilitating impressions is less felt, and becomes less hurtful. Hence it happens, that people in the most diseased state are sometimes able to endure much more violent excitement than when in perfect health; and for this reason the strongest medicines, in many diseases, scarcely produce any effect: in such a state the most powerful stimulants are often necessary. Reaction is oppressed or weakened. In the first case, stronger stimulants will be endured; in the second, the application of stimulants requires the utmost caution, that the small stock of vital principle may not be exhausted at once by too violent straining. Hence the important difference in the mode of treating the two periods of asphyxia, complete apparent death, oppressed irritability; and the first manifestations of vital activity on the commencement of a return to life, therefore weak susceptibility of irritation.

From weak susceptibility of irritation the continuance of life, under the feebleness of old age, may in part be explained. It may proceed to apathy and insensibility.

Susceptibility of irritation may be greatly lessened in some of the principal organs; and yet, in consequence of certain concomitant circumstances, may contribute to the duration of feeble life, and perhaps  
more

more than when it is general, in which case it is a symptom of greater debility. Thus the irritability of the organ of the soul may be lowered, and human nature be thereby secured from many pernicious influences; as, for example, from the destructive influence of the passions. This indolence we find in old people. Thus the susceptibility of irritation in the lungs may be so lessened that people will suffer less from the influence of some pernicious kinds of air.

Susceptibility of irritation is lessened by hardening and habit.

It is of importance to make a distinction between lessened and weakened susceptibility of irritation. Though irritability be lessened ever so much, and though it be totally lost in individual organs, the body may still contain a sufficiency of the vital principle, which may only be prevented from manifesting itself as in the case of apparent death; but when susceptibility of irritation is actually weak, that is, when there is a deficiency of irritability, there is also a want of vital principle. This is the case in the feebleness of those at the point of death. This may be illustrated by the example of old people. In the feebleness of age, which in vigorous old people is relative, we observe in individual organs an insensibility and hebetude; as for example, loss of sight and of hearing; but other vital functions in such persons are sufficiently active; they digest well, &c. On the other hand, at the greatest age, when a great decrease of the vital principle takes place, we observe also deficient susceptibility of irritation, which is seen chiefly in the organs of the senses; but in that case the weak susceptibility of irritation is general,

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arising

arising from a loss of vital principle. In the last case, deficient susceptibility of irritation can contribute nothing to the duration of life.

### § 276.

Individual organs may have a particular susceptibility for certain properties of the vital principle; so that, for example, irritability will continue longer in one organ than in another. This also is a concurring cause of the prolongation of life, even where there is a great degree of feebleness.

### § 277.

Man stands in a still higher spiritual relation, which tends to prolong his life, and which, even when his physical relation has a preponderance, prevents, for some time, the total loss of the vital principle. We have already explained the connection (§ 65.) which the soul has with the vital principle. A great deal, therefore, may be expected on this side in regard to the maintenance of life, even where there is the greatest debility. The bodily powers may be long maintained by the influence of the soul, though many debilitating causes may, at the same time, exercise their action on the organization. Without admitting Stahlism, we may assert the reality of this spiritual operation on the physical part of man. The more perfect and better conformed the power of the soul is, the more it serves for maintaining life: it is then susceptible of so many agreeable stimulants, of so many mental pleasures and moral enjoyments, which give a new impulse to life, and exalt the activity of the vital power. In particular, more life is given to the business of animalization

zation and assimilation ; and, notwithstanding many unfavourable circumstances, a respite is thus procured to feeble existence. Increased activity of the mental powers may, in certain cases, serve for maintaining feeble life, as by the greater activity of the vital principle on the organ of the soul, its immoderate and too violent activity on other organs, and consequently the consumption of the vital principle itself, as well as of the organic parts, is lessened. (§ 272.) This influence of the organ of the soul, in maintaining life, is particularly perceptible in men who are accustomed to put the power of their soul into great activity, by which the irritability of that organ is exalted to a very high degree. By mental impressions the tone of their whole physical nature is animated ; activity of the organs of thought becomes to them a real want ; their whole life is a thinking life. Thus lived Haller till his seventy-sixth year.

A perfect conformation of soul will contribute more to the maintaining of feeble life, where man is capable of the use of reason, by which means, with proper attention, he is able to guard against those things which are pernicious, and can employ those which are salutary ; and here a knowledge and observation of his individual moral and physical state will be of service.

The longevity of so many literary men may serve as a proof of the truth of these observations.

### § 278.

In this research, the constitution of the organization is particularly to be considered.

Man, of all animals, has the most perfect organization ; it is the most complete work of the animal creation, and is therefore susceptible of the most com-

plete life. The innumerable organs which constitute the system of the physical nature of man, their delicate structure, and their mutual connection, make them susceptible of a large stock of vital principle, and, at the same time, secure to it the most unconfined activity. This perfect organization renders man the most accessible to every vital stimulus from without, and hence such an infinite number of occasions for exciting and maintaining the vital principle externally. There are stimulants, therefore, for human life, when animal life no longer receives any impulse from without. Thus the vital principle, even where there is the highest degree of irritability, can be always re-animated. The more perfect nature of the organs renders them also much fitter to maintain longer the internal activity of the vital principle; and hence there are so many means of supporting life. Every thing that surrounds us, every thing that has a relation to our spiritual and physical life, may co-operate to the maintenance of our existence. When the common passage for nourishment through the œsophagus is shut, something may be done towards preserving life by the application of certain means to the surface of the body. (§ 482.)

## § 279.

Perfect conformation of individual organs makes them fit to be acted on by the vital principle. Each individual organ is of itself susceptible of life, and has, as it were, its own vital principle. As long as the chief organs of life are not injured, such an individual organ will have its own life. When individual organs, therefore, are annihilated, the vital principle  
still



still remains behind in the body. It is astonishing to see what important organic parts may be destroyed without prejudice to life.

## § 280.

Another cause of the duration of asthenic life is the GENERAL VITAL SUSCEPTIBILITY EXISTING IN THE ORGANS, when no principal organ has totally lost its susceptibility for the vital principle. Though life may be feeble, and though the body may have suffered by disease, even under these circumstances a longer continuance of life is to be hoped. On the other hand, no good prognosis can be formed when several organs, and particularly the chief organs, have been destroyed or rendered useless and unsusceptible of the vital principle. This is the case in lameness of the organ of the brain; injuries of the organs of generation. There is no instance of an eunuch having ever attained to a great age.

Perfect life, or at least greater vital activity, in any of the organs, is, in a particular manner, the means of vital support. Life, therefore, may still continue, when individual organs are injured, or have suffered by the feebleness of age or disease. I must here call to the reader's remembrance what has been said of the organ of the soul (§ 277.) as well as of the great vital activity of the organs of the brain in children (§ 270.) We find in people who have attained to a great age, as in the case of Thomas Parr, the stomach and the organs of generation in an excellent state.

## § 281.

A good structure of the organs makes them peculiarly

liarily fit for the action of the vital principle. Under this head is comprehended a firm consistence of the solids, and an intimate admixture of the fluids, capable of withstanding pernicious debilitating influences, both externally and internally. Thus strong blood-vessels withstand the continually violent motion of the blood; and a good structure of the bones secures them from external injuries.

## § 282.

It is not, however, a solid organic consistence alone that withstands destruction; elasticity, pliability, and extensibility of the vessels, produce the same effect, (§ 162.) and often much better than the strongest bodily structure. Hence the long duration of feeble life in women and children.

## § 283.

The consumption of life is particularly retarded by every thing that lessens the too great activity of the vital principle. The periods of lessened irritability, as well as of other lessened manifestations of the vital principle, serve for the reparation of what has been lost; and even when this reparation is impossible, the too great consuming vital activity of existence requires a pause. Sleep and rest are the chief retarding and restoring means of life. Rest effects this object, and produces lessened vital activity in the organs in general, as well as in individual organs. In the last case its influence is greater when the activity is lessened in one of the principal organs, as for example, in the organs of the thinking faculty. Hence mental rest contributes greatly to the extension of life, and even of feeble life.

life. The lessened exertion of the powers retards vital consumption. The rest which sick persons enjoy in bed contributes to the same end, because the irritability of the muscular powers is lessened.

Regular and sufficient sleep serves, on the one hand, for repairing the lost powers, and on the other, for lessening consumption by lessening vital activity. Hence the lives of people, who are exposed to the most debilitating fatigue, may be prolonged to a considerable age, when they enjoy sleep in its full extent.

§ 284.

Even apathy and rest, that produces complete inactivity, may, in certain cases, prolong life for a certain period. Such is the vegetation in the extreme age of very old persons, who seem as if fixed motionless to one spot; and in whom, except the use of food, scarcely any other of the vital functions are observed, and who continue for years in this state.

§ 285.

We may mention, as no less applicable to the present subject, the case of complete external inactivity of individual organs, in consequence of the manifestations of the vital principle being suppressed, or partial apparent death. Even in this state, we observe an extension of existence; as for example, by inactivity in the organ of the soul, deprivation of consciousness. To this head belongs suppression of the activity of individual powers; as for example, the power of digestion; the power of generation, &c. as we observe in diseases; and by which the greater consumption of the vital power is checked. This may be serviceable,

in particular, in cases where too much vital activity exists in some other organs, as the waste of powers would otherwise be too great if it extended to more of the organs.

By continuance, such periods of suppressed vital activity end in actual death.

### § 286.

A principal point to be considered, in regard to the causes of the duration of asthenic life, are the external relations in which we are placed. These relations are both spiritual and physical; for example, impressions on the mind, the air, food, &c. Our life is not a production of external stimulants, but a self-sufficient, self-subsistent chemical operation, subject, however, to the conditions and influence of these stimulants. By the mode and degree of action of these stimulants, the internal vital activity is changed and modified. When the ACTION OF THESE STIMULANTS, THEREFORE, IS NEITHER TOO GREAT OR VIOLENT, NOR TOO WEAK AND DEFICIENT FOR MAINTAINING LIFE, life itself may continue, even when the constitution is debilitated and exposed to internal debilitating causes.

I. NOT TOO IMMODERATE. Thus the life of asthmatic persons is prolonged, when they inhale air less mixed with oxygen; while, on the other hand, in too pure air, the unnatural activity of the vital principle is increased, consequently consumption, and the term of life is shortened. Thus guarding against intemperance in eating, irritating food, and spirituous liquors, prolongs the life of feeble persons. Avoiding every thing to which one has not been habituated, and the careful observance of certain diætic rules,

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in regard to feeble life, and particularly in old age, produce a like effect.

2. NOT TOO WEAK. The continuance and support of life require a certain degree of external excitement, proportioned to the individual susceptibility of irritation. Where this is wanting, the internal activity of the vital principle is not sufficiently animated. Thus, too poor nourishment, watery food, and mere vegetable diet, maintain and promote feebleness; whereas, a strengthening diet, where there is an asthenic predisposition, will prevent feebleness, and prolong life.

3. EXISTENCE OF THE NECESSARY STIMULANTS. These stimulants may be indispensably necessary of themselves for the maintenance of life, or only through habit. When there is a deficiency in the reparation of what has been lost, life must at length cease; but when feeble life is assisted by proper nourishment, it may be prolonged for a considerable time.

### § 287.

Life is subject to the influence of external stimulants. Some of these are able to maintain life longer than others; as, for example, a moderate degree of heat. Among the debilitating powers that shorten life, there is also a great difference; so that under the action of some of them, life may be continued longer than under that of others. Thus it supports itself longer under the influence of a considerable degree of cold than under that of great heat: the highest degree of cold has a different effect.

Sometimes there are certain stimulants from which life seems suspended as by its last thread. Among these, in particular, are external heat, mental stimulants,

lants, animating means which rouse the vital principle, wine, musk, camphor, æther, &c.

### § 288.

Certain changes of the animal nature, general states which give a different, changed direction to the activity of the bodily functions, have an important influence in regard to the prolongation of life. Among these are the periods of expansion and pregnancy (§ 186). In these states, diseases with which the body was before attacked, are either suspended, or assume a different progress. Sometimes this change is permanent, so that different chronic diseases cease; for example, after maturity; sometimes it is only temporary, so that the disease is more suspended during the period of expansion. The latter case contributes also to the prolongation of life, as it at least lessens, for a certain time, the too violent irritation of the disease. During pregnancy, consumption generally makes a stand, or its progress becomes much slower.

When with increasing years the immoderate irritability (excitability) is lessened, several diseases assume a slower pace, and life is less speedily consumed. We have an instance of this in consumption, which proves mortal much sooner in the period of youth than in that of manhood.

Apparent death also belongs to this head; a state in which irritability is greatly lessened, and in which the action of external pernicious stimulants contributes less to the extinction of life. Hence the incredibly long duration of life in such a state; which may be explained besides from the suppressed activity of assimilation

milation and resorption. Hence people benumbed by cold can remain so long alive exposed to the utmost degree of it.

## § 289.

Various diseases of the chronic kind terminate their course sooner, according as they excite or lessen irritability. Many diseases contribute to the prolongation of life, and for this reason, that, when added to the previous diseased state, they produce in it such a change that the action on the irritability is less violent. To this head belong cachexies, out-breaking, and all the so-called metastatic diseases. Local diseases, into which general diseases are converted, have, under certain circumstances, the same effect. Hence there is some foundation for the opinion prevalent among the common people, that the hæmorrhoids, and the gout, contribute to the prolongation of life.

## § 290.

From these causes we may explain why life in the asthenic state can continue for a considerable time. Some debilitating causes are destroyed by opposite strengthening causes, and the equilibrium is thus continually maintained.

## § 291.

Even HABIT (§ 143—146) serves to prolong life. Hence it is possible that the vital principle may exercise its action on the body for some time, even when the organization has, in a considerable degree, lost its susceptibility of it. For this reason the vital principle exercises its action in individual organs longer

longer than it otherwise would have done, and susceptibility for the vital principle is in such organs longer retained. Thus epileptic movements continue longer, and the falling sickness returns, by mere habit, long after the exciting causes have been removed. We find, in general, the natural animal operations combined with our daily habits of life.



## II.

## ASTHENOCOMIC;

OR,

*THE MEANS OF PRESERVING FEEBLE LIFE.*

## PRELIMINARY OBSERVATIONS.

## §-292.

WE now come to the application of the principles laid down in the First Part, or the means of maintaining feeble life. The art of the physician is employed not only in preserving health, and guarding against disease, the consequence of which is the prolongation of sound and perfect life, but it exerts itself to maintain life under the most unfavourable circumstances, amidst feebleness and disease. It endeavours to remove the causes of feebleness; but if this cannot be accomplished, it endeavours, at any rate, to extend feeble life as far as possible; and, keeping in view the principles established in the First Part, to prolong the duration of our existence.

## § 293.

The employment of this art, however, is opposed by many difficulties, as life is naturally surrounded by  
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a multitude of enemies. Even when we possess full vital strength, and have the full enjoyment of health, the duration of life is very uncertain; but it must be much more so where it is feeble; when the enemy has already made an attack, or has gained considerable advantages over us. In the latter case, more helps are necessary to guard against the farther progress of such a state. When it is impossible to restore the lost health, we must be satisfied with preventing the evil from acquiring a superiority; and if this cannot be done, if the disease will admit of no cure, we must try to retard the progress of the malady as far as possible, and to maintain life, with all its debility, as long as nature will allow.

## § 294.

There are, therefore, two principal indications for maintaining feeble life :

1. TO GUARD AGAINST THE CONSUMPTION OF LIFE.

2. TO RETARD THE CONSUMPTION. Life is consumed of itself as well as by the activity of the vital principle, and other external stimulants.

## § 295.

Life, even where there is the most excellent constitution of the organs, and the strongest body, cannot exist for ever; and though it were possible to secure it in the most perfect manner from all external noxious influences it would still decay, because, by the activity of the organs, and the irritation thence produced, the organs would be consumed, and gradually lose all their susceptibility for being acted upon by the vital principle.

ple. How great this internal consumption of the organs is, may be gathered from the impulse of the blood against the vessels, and from the activity requisite for maintaining the necessary functions of life, and which extends throughout all the organs; how many organs are put into activity by the business of respiration and digestion. The organs, by this internal excitement, must gradually experience changes in the cohesion and admixture of their component parts, which at last render them unfit for the duration of life.

*Gutta cavat lapidem non vi sed sæpe cadendo.*

In this manner life, even among moderate men, and if it should continue a hundred years, must at last come to an end.

§ 296.

The duration of life, however, is prevented not only by this internal self-consumption, but also by the ACTION OF EXTERNAL STIMULANTS; yet these external stimulants are conditions of life, without which it could not exist. These stimulants exercise an action both on the organization, and on the vital principle. On the one hand, whether they increase or lessen the activity of the vital principle, the consumption of the organic parts is effected by external stimulants; on the other, they excite the organic parts by their immediate action on the surface of the body, and promote consumption. Thus the action of the air tends to consume the body. Even though the restorative functions are in complete vigour, and what has been lost by the progress of life be repaired, the activity of the vital-principle thereby excited is itself of a consuming nature.

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This decrease, therefore, advances progressively in complete manhood, but in an imperceptible manner.

### § 297.

This consumption is much increased by disease, or by POSITIVE DEBILITATING STIMULANTS, either EXTERNAL OR INTERNAL, and the duration of life is consequently shortened. The organs suffer in their consistence, lose their susceptibility for internal and external excitement from the vital principle, and for the action of the surrounding elements, and become always more and more unfit for animation. In vain is all influx of reparation from without, as the organic capability of receiving it still decreases, and is insufficient for the maintaining of life. Hence there at length arises a TOTAL LOSS IN THE ORGANS OF SUSCEPTIBILITY FOR THE VITAL PRINCIPLE, that is DEATH.

### § 298.

The state of life is more or less perfect, and inclines either to health or disease. These different gradations are determined :

1. BY THE EXISTING SUM OF THE VITAL PRINCIPLE. It has been proved that the stock of the vital principle is lessened in a considerable degree by diseases, particularly such as irreparably destroy the organic parts, and by old age. By sum of the vital principle we understand the greater or less quantity of it existing in the body. Now if a smaller quantity of the vital principle is present in the organs than is necessary to put them in full activity, and to exercise the functions in that degree requisite for maintaining a per-

a perfect state of life, there arises an asthenic state, that is feeble life. This may be illustrated by the state of the constitution at a great age. Life, in that state which we call **DIRECT VITAL FEEBLENESS\***, cannot long continue; the scanty stock of vital principle is not sufficient to produce and maintain, in a permanent state, the activity requisite for the necessary vital functions. On account of this too feeble operation, and the too little excitement of the organs destined for the functions, there ensue unnatural changes in the interior part of the organization; deviations from the natural admixture of the organic fundamental component parts; obstructions, congestions, &c. and the consequence is unfitness of the organism for life.

2. BY THE MORE OR LESS PERFECT ACTIVITY OF THE VITAL PRINCIPLE.

The same distinction must be made between the vital principle and its activity, as between cause and effect. The vital principle is incessantly active, for without activity and motion no life can take place. The idea of a flumbering vital principle is chimerical. Man is the most perfect *perpetuum mobile*. But this activity, this manifestation of the vital principle may exist in **VERY DIFFERENT DEGREES**.

There is a great difference between the most perfect health and apparent death, or the extreme degree of feebleness in malignant nervous fevers. But, even in this last state, the vital principle is always busy and active, only its manifestations escape our perception;

\* Is different from that which some, with **BROWN**, call, improperly, **DIRECT DEBILITY**, where restoration of the lessened or exhausted excitability is possible; consequently there is no actual loss in the sum of the vital principle.

death appears to us to have commenced where life is still actually present.

§ 299.

The activity of the vital principle is greater:

(a) THE GREATER THE SUM OF THE VITAL PRINCIPLE PRESENT. The manifestations of the vital principle, however, may be pretty lively where there is actual direct vital feebleness (a deficiency of the vital principle) and shew itself pretty strongly in individual organs; but this is the state of disease or of unnaturally exalted irritability, in which the vital principle is sometimes immoderately active; and hence consumption, where the stock of life is weak, is much greater.

(b) THE MORE PERFECT THE ORGANISM OF THE BODY. This perfection depends on the regular structure of the organs; on the natural proportion of their component parts, by which they become fit for being acted upon by the vital principle. There are many variations from this natural proportion, which are either ORIGINAL, existing already in the structure of the organs; or they are variations excited by the ACTION OF CERTAIN AGENTS ON THE ORGANIZATION. The animated organism is incessantly exposed to changes; the business of absorption, resorption, assimilation, nutrition, &c. is continually carried on in a greater or less degree, as long as life continues. But according as stimulants exercise a stronger or weaker action on the organism, the activity of these functions, that is, the activity of the vital principle, will be modified; consequently, the activity of the vital principle depends on the state of the organism. If the state

state of the organism be different from the state of perfect health, the activity of the vital principle will be impeded. This we call **INDIRECT FEEBLENESS**.

(c) **ACCORDING AS THE ACTION OF STIMULANTS ON THE ORGANIZATION IS MODERATED.** If the stimulants exercise too violent an action, the activity of the vital principle will be increased beyond the natural state; if their action be too weak, it will be depressed below that state. Thus asthmatic people are excited too violently by too pure air, and thus the activity of the vital principle is lessened in the external organs by frost.

These external stimulants are **CONDITIONS OF LIFE**. Life is feeble, unless these are present in a certain degree, or where any of them are wanting.

### § 300.

From these observations we can form an idea of feeble life. It consists,

1. IN **IMPERFECT ACTIVITY** of the vital principle.

The vital principle is either immoderately active or too inactive.

2. IN **LESION OF THE ORGANIZATION**, by which the organization is rendered less fit both for being acted on by the vital principle, and for the external action of external powers; the action of these powers is either not felt, or felt in a very small degree; and the organization is affected by it in an unnatural manner: so much depends on the structure and internal construction of a machine to render it fit to discharge the functions for which it is destined.

## § 301.

The most immediate cause, the foundation of all life, is the vital principle: the conditions of life and the remote causes are EXTERNAL STIMULANTS.

## § 302.

External stimulants, partly by their deficiency, partly by their superfluity and too great accumulation, and consequently by too weak or too strong excitement, produce an unnatural state of life, which we call FEEBLENESS (asthenia.) In the first case, when there is a want of the necessary stimulants, it is, according to Brown, DIRECT FEEBLENESS (debility); in the second, where there is an immoderate degree of excitement, it is INDIRECT DEBILITY.

## § 303.

On these grounds the METHOD OF MAINTAINING FEEBLE LIFE DEPENDS. We must endeavour to remove the remote causes, those impediments which prevent full regular activity of the vital principle and the concomitant good state of the organization; but if this cannot be accomplished, we must, at any rate, endeavour to employ our imperfect knowledge of the operations of the vital principle and of the organization to remove these impediments, at least in part, and to prevent, for a certain period, the too rapid consumption of life.

## § 304.

The chief point in the art of curing disease, or an unnatural state in the interior part of the organization,



the grounds of which lie in an irregular action of the vital principle, consists in the **REGIMEN OF EXTERNAL THINGS**; that is, of all those things which exercise an action on man, and to which we are conducted by a knowledge of man, and by observations and experience, which enable us to calculate the changes that may be produced in the interior part of the organization by the excited action of external means.

§ 305.

For this purpose a knowledge of the organization in general, as well as of its present state, is required.

The mode of treating the organic state is modified by our intimate knowledge of its constitution. In this business we are guided by observation of the external phenomena, the manifestations of the organic powers.

§ 306.

From this we may deduce the mode of treating the asthenic state of life.

The art of maintaining feeble life consists,

1. IN EFFECTING AND MAINTAINING A CERTAIN MEAN STATE OF THE ACTIVITY OF THE VITAL PRINCIPLE, EQUALLY REMOTE FROM IMMODERATE AS FROM DEFICIENT ACTIVITY.

2. IN REMOVING INJURIES OF THE ORGANIZATION AND RESTORING IT TO ITS SOUND STATE.

Both these circumstances are inseparably connected. We perform the one when we accomplish properly the other; for every thing that exercises an action on the organization does so also on the vital principle,

ciple, and *vice versa*; for without vital principle no organization can exist: organization is the vehicle of the vital principle. If we are not always able to attain to the second indication, we must, however, exert ourselves to CHECK, OR AT LEAST CONFINE, THE FURTHER PROGRESS OF ORGANIC DESTRUCTION.

## CHAPTER I.

### GENERAL METHOD OF MAINTAINING FEEBLE LIFE.

#### § 397.

THE means of maintaining life in the asthenic state, are founded on our knowledge of the vital principle, and the organization. The difficulties which occur in the application of theory to practice, are numerous. It is impossible to form into a complete regular system our ideas respecting the vital principle, and organization, and the powers of the means known to us for maintaining feeble life. The knowledge of human nature is too imperfect and deficient; the powers which exercise an action on it externally and internally, are so different, and their manner of action is so modified, that until we obtain a better knowledge of them, than we at present possess, they must often deceive our observation, and elude our research. There is less absolute certainty, in regard to the theoretic principles on which we found our art of healing, than we perhaps imagine. No one will have the presumptuous vanity to consider his system as the only one founded on truth, and to expect that it should be blindly adopted, when it is merely agreeable to nature, has probability in its favour, and can be confirmed only by a judicious practical application. But even if such a system be not altogether established on sure grounds, it may however be of use to the practitioner; the consequences deduced from it

may still be attended with some advantage\*. The physician who is guided in his practice by principles, always proceeds with more certainty. There were excellent practitioners, even at a period when theory was far more defective than at present; and yet these eminent men formed the rules of their healing art from that imperfect theory: they supplied the deficiency by their acuteness and spirit of observation, and in this manner Pindar and Homer sung long before any thing had been written on the art of poetry. It cannot, however, be denied, that our present improved theory, particularly the deeper study of human nature, the doctrine of the vital power, or vital principle, affords great advantages in regard to the practical art, and gives it more certainty and perfection. But there are so many deficiencies, so many difficulties in explaining the connection of the phenomena, that we can give only a very few general rules on which it is possible to found a scientific method for maintaining feeble life. With our present knowledge of human nature, all that we are able to effect is, to deduce from certain individual observations, rules for our mode of practice. However deficient these observations may be, and however much the principles we have discovered, may be liable to exceptions, yet they may afford hints for general practical prescriptions. It belongs then to the physician, to apply them to individual cases; to compare accurately with each other, indications and counter-

\* This observation, and that we are only collecting materials towards a more perfect system for posterity, ought to render us more tolerant in regard to those who entertain sentiments different from our own.

counter-indications, and to discover the deviations which ought to be made from them. He must never lose sight of these general principles, and his practice must be founded on a knowledge of nature. According as he deviates more or less from these principles, without abandoning them entirely, he becomes an empiric, in the good sense of the word. The irrational empiric pays no attention to nature; follows unconditionally his own ideas, or implicitly adopts those of others.

§ 308.

Observation, however, of the phenomena of life, gives us many practical results, on which we establish grounds for prolonging life in the asthenic state, when it is not altogether possible to remove the asthenia itself completely. But we obtain our end, in the most perfect manner, when we keep in view the two principal objects, the vital principle, and the organization. If we attend only to the vital principle, we shall often apply means that weaken and destroy the organization. However properly we may be conducted by this view, when we are able to adapt the stimulants to the state of the vital principle, it may still easily lead us astray; we might thus totally forget the body, and confounding the vital principle with the soul, become partial. Our object is man, as an animated body, endowed with a soul. This is the point of union for all real physiologists; the principal law of pathogeny to which all their systems more or less approach, whether they make the grounds of their theory to be the vital principle, or the organization. It is, however, neither the vital principle  
nor

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nor organization alone, but only ANIMATED ORGANIZATION that can afford a sure basis for the art of prolonging human life.

### I. THE VITAL PRINCIPLE.

#### § 309.

1. The vital principle is either TOO ACTIVE, and therefore occasions a speedier consumption of itself, as well as of the whole organization; or it is TOO INACTIVE, that is less active than is required for maintaining a sound state of life. Immoderate activity, in the asthenic state, will tend more to shorten life, because there is either a smaller stock of the vital principle, or the organization is weakened; that is, has lost both in regard to susceptibility for the vital principle, and to susceptibility of irritation, from external stimulants. In the first case, there is a want of the necessary efficacy of the vital principle in the organs. A distinction must here be made between efficacy and activity. Sufficient efficacy is the proportional degree of vital activity requisite for preserving the equilibrium of health. In the second, there is a deficiency in the reparation from without, of that which has been lost, as the weakened organization is not fit for receiving it in that degree necessary for maintaining feeble life.

Too great, immoderate vital activity, or, according to BROWN, sthenia by excitement, is observed in pyrexia, or inflammatory fevers. But even in the asthenic state, where there is feeble life, too great activity of the vital principle may exist, though only for a certain period. (§ 102).

#### § 310.

§ 310.

But the vital principle is sometimes **TOO INACTIVE**. This is likewise a cause of feebleness. Hence too little reaction against the action of pernicious powers; too little opposition to the strength of disease.

The causes of this deficient activity lie either in an actual deficiency of the vital principle, as in great old age; or in impediments which suppress the activity of the vital principle, as in many kinds of apparent death, and in nervous fevers.

§ 311.

Too much as well as too little vital activity forms both a **GENERAL** and a **SPECIAL** state, in which certain organs exclusively suffer.

§ 312.

From these observations we may deduce the following indications :

1. **THE IMMODERATE ACTIVITY OF THE VITAL PRINCIPLE MUST BE LESSENERED AND MODERATED.**

2. **THE TOO WEAK ACTIVITY OF THE VITAL PRINCIPLE MUST BE STRENGTHENED.**

§ 313.

**A. LESSENERING THE IMMODERATE ACTIVITY OF THE VITAL PRINCIPLE.**

In the application of the means, great caution is required to determine the degree to which the activity of the vital principle must be lowered, not to do injury by a contrary extreme.

This is of importance in regard to the time of continuing the irritation-lessening method.

§ 314.

## § 314.

It is of importance to determine in this case, whether with the greatest activity of the vital principle there is an actual DEFICIENCY OF THAT PRINCIPLE, or whether there is a SUFFICIENT DEGREE OF VITAL STRENGTH (§ 103); for we find in the utmost real debility a great liveliness of action in the organization in general, as well as in individual organs. This is the case with those who are dying. A little before his death, Muley Moluch caused himself to be carried round through his troops in an open litter, exhorted them to fight with courage and bravery in defence of their religion and country, and when he found them ready to give way, he sprung from the litter, though in the last agony, rallied his army, led them on to a new attack, and a few moments after expired.\*

The case is different where there is still sufficient vital strength, but not enough for the degree of the asthenic state. This we observe in BROWN's indirect debility, which arises from immoderate excitement. It is a state where the manifestations of the vital principle are oppressed; where the power of being acted upon by stimulants is in a considerable degree destroyed.

## § 315.

The mode of treatment for these two different states  
of

• Great attention ought to be paid to this difference in a practical point of view. The feeblest persons, by excessive excitement, may be impelled to perform operations which belong to strength. In such persons, though an actual deficiency of the vital principle exists, yet that principle may be exceedingly active.



of lessened activity of the vital-principle is totally different.

In the first case, great caution is necessary that the small stock of the vital principle may not be entirely exhausted. The chief object of attention must be to guard against the progress of exhaustion, or at least to lessen it. The quantity of the stimulants must be accurately adjusted; and they must be employed only in that degree which is necessary to maintain the activity of the vital principle, as there is great reason to apprehend that when the usual activity ceases, or decreases suddenly in a considerable degree, the irritability, which continues a certain period by continuing the excitement, may be totally exhausted. (§ 377.)

### § 316.

Great caution also is required in this state to withdraw, in a certain degree, the external stimulants which maintain the too great activity of the vital principle. This is done :

1. BY REMOVING OR LESSENING THE EXTERNAL STIMULANTS.

2. BY CHANGING THEM.

Care must be taken not to remove these stimulants abruptly, that life may not be at once extinguished by this sudden change. This would be the case if feeble patients, in whom the activity of the vital principle is immoderately exalted by heat, should be suddenly exposed to cold.

External stimulants must be lessened or changed with the utmost caution; for example, when stimulating food is exchanged for food which is less so.

In the last place, changing and varying the  
stimulants

stimulants may be attended with great advantage, if the irritability hitherto excited in too strong a degree be lessened; when, in particular, those stimulants applied in the place of others, to which people have been before exposed, exercise a less violent action.

## § 317.

The second case of asthenia, when the vital principle is not deficient in so great a degree, requires another treatment, and we may proceed in it with less timidity. With proper caution we may employ debilitating means, if they are not too long continued.

## § 318.

## TREATMENT OF IMMODERATE ACTIVITY OF THE VITAL PRINCIPLE.

We must make a distinction between the state of immoderate vital activity IN GENERAL, and that in INDIVIDUAL ORGANS. Sometimes the vital principle is immoderately active in individual organs, by which the whole constitution of the body suffers, and the necessary life is withdrawn from other organs; for example, too great activity of the organs of thought.

## § 319.

The indications here, with regard to DIRECT OR INDIRECT feebleness, are:

I. TO LESSEN THE TOO GREAT VITAL ACTIVITY OR IRRITABILITY IN THE SUFFERING ORGANS. This is done:

(a) BY DEBILITATING MEANS cautiously employed, provided the vital principle exists in a sufficient degree. To this head belongs the merely leaving  
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ing off the stimulating regimen hitherto followed; but, in general, this mode of cure will be employed with more certainty in local affections.

(*b*) BY NARCOTICS. Narcotics are stimulants, when of such a strength, or employed in such a degree, as is sufficient to destroy irritability for a certain period. This effect is produced by wine, opium, and narcotic poisons.

2. TO EXALT THE LESSENERD VITAL ACTIVITY AND IRRITABILITY IN OTHER ORGANS, PARTICULARLY IN THOSE WHICH HAVE A CONSENSUS WITH THE SUFFERING ORGAN. This is done by stimulating medicines locally applied.

3. TO PRODUCE GENERAL CHANGES IN THE BODILY CONSTITUTION. In regard to direct or indirect feebleness, this object will be accomplished :

(*a*) BY WEAKENING REMEDIES, in order to effect a more general and uniform distribution of the vital principle; for example, emetics, purgatives, bleeding.

BY STRENGTHENING REMEDIES, of which we must chuse those which do not, at the same time, stimulate.

Narcotics also may here be employed as corroborants, since they tend to lessen and check the immoderate vital activity; but care must be taken to lessen their noxious effect, by which the vital principle itself would be exhausted. It is true that these medicines leave behind them a certain relaxation and debility; but in cases where there is not a great deficiency of the vital principle itself, this is only INDIRECT DEBILITY, which is merely transitory, so that the equilibrium, destroyed by the irregular activity of the  
vital

vital principle, is again restored. But a great deal depends on THE DEGREE in which these narcotic means are employed. In a small insufficient degree, instead of lessening, they will rather exalt the immoderate irritability and hasten vital consumption; but in a stronger degree, they are able to lower the immoderate irritability at once; and to excite, as it were, a temporary degree of apparent death, which, with a stronger dose, will exist in a still higher degree, and by imprudent application may pass into actual death.

## § 320.

It is not always the case that the immoderate vital activity can be lowered at once; and the surest way is to endeavour to restore the equilibrium gradually. The method to be employed is as follows:

1. WEAKER STIMULANTS THAN THOSE WHICH EXCITED THE PREVIOUS IRRITABILITY MUST BE EMPLOYED. These stimulants must be lessened only gradually. Thus brandy drinkers can be best weaned from their pernicious habit by gradually lessening their daily quantity.

2. THE FORMER STIMULANTS MUST BE CHANGED.

Care, however, must be here taken, that while irritability is lessened the powers of action may not suffer\*; of the means, therefore, employed for lessening irritability, those deserve the preference which debilitate as little as possible.

## § 321.

In order that the power of action may not be too much depressed it will be necessary:

\* An explanation of the terms irritability, susceptibility, of irritation, and power of action may be found, § 78, 79, 82.

I. TO GUARD AGAINST DEBILITATING POWERS.

Every thing that debilitates must be as much as possible removed : the patient must be allowed to use, if not a direct strengthening stimulating diet, at least such food as may contain sufficient strength ; there must, therefore, be no decrease in the necessary nourishment ; no starving cure ; no weak watery food.

2. STRENGTHENING MEANS MUST BE EMPLOYED IN A MODERATE DEGREE. Such strengthening means must be chosen as do not, at the same time, stimulate, or stimulate in a high degree. Thus spices and spirituous liquors are far more stimulating than animal food. Regard, however, must be had to habit and mode of life. Thus certain strengthening, stimulating things, produce none of these effects in persons, whose susceptibility of irritation is blunted. Hypochondriacs, enervated in a high degree, cannot bear cinchona and quassia ; exceedingly feeble patients, in general, cannot endure cinchona in powder.

§ 322.

We must endeavour to assist the artificial, excited debility by means of corroborants ; and, at any rate, to prevent the injury which might be occasioned by the before-mentioned debilitating powers. Thus, where the constitution is debilitated, gentle dissolvents may be given with an addition of cinchona. The judicious physician, however, will not sometimes employ the debilitating and sometimes the strengthening method, as if he wished to make up for all the faults that may have been committed. The object here is merely to lessen the immoderate irritability. This is done indeed by medicines, which, at the

same time, attack the power of action; and therefore care must be taken that no direct debility arise, but that nature be always supported. The kind of medicines to be employed for accomplishing this end may be determined from the preceding principles.

### § 323.

As a knowledge of the constitution, and of concomitant circumstances, is the surest guide in applying the means of cure in the present case of asthenia, arising from immoderate activity of the vital principle, such debilitating means as are best calculated to lessen the excess of irritability are to be PERIODICALLY employed. But this is the case in regard to indirect debility, where there is no deficiency of the vital principle.

This method also must NOT BE CONTINUED TOO LONG, that the power of action may not be too much weakened.

This method will be employed with most advantage in LOCAL AFFECTIONS, and when TOPICALLY applied, provided individual organs suffer from excess of irritability. In the first case, a considerable influence on the diseased state, in general, may be expected, on account of the consensus. Lessening the irritability in individual organs, will serve to lessen the immoderate irritability of the body. Debilitating means must, in particular, be employed when this is the case with individual organs; with this view, local bleeding is employed; for example, by leeches and cupping; also injections in diseases of the bowels.

### § 324.

This local application of debilitating means, or, in  
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order that I may avoid being accused of contradiction, of the means for lessening irritability, is safer when their action is PARTICULARLY CONFINED TO INDIVIDUAL ORGANS, so that no increase of the general feebleness may be produced, while the immoderate irritability is lessened. To guard against these prejudicial consequences, it will be necessary to make the application of the means as local as possible. Thus bleeding may be rendered topical by previously binding up the suffering part. The effect in removing a local complaint will be so much the greater. This will be the case in regard to local cramp in the arms, &c.

In consequence of this observation, cold is applied locally in cases of mania.

§ 325.

Those means which lessen the too great irritability, without weakening the power of action, will be the most proper for producing the desired effect. The excessive activity of the vital principle, with the noxious influence of which we are well acquainted, will be lessened without the vital principle itself sustaining any loss. There are no means more powerful to accomplish this end than REST.

§ 326.

These means employed topically serve also to lessen the immoderate irritability of individual organs. Thus lessening the activity of the organ of thought, has a beneficial influence in lowering immoderate activity in general.

## § 327.

This local application relates to the suffering organs more immediately; for example, when by too great activity of the mind, and the immoderate irritability in the organ of thought thence arising, the irritability of the body is unnaturally exalted; and also to individual organs, in general, in order that by lessening the irritability in these organs, a general effect may be produced by means of the consensus; for example, the local application of bleeding, bathing the feet, &c. In this manner detergents have an effect more immediately, indeed, on the bowels, but by means of the consensus on the whole frame.

## § 328.

In applying means for lessening the immoderate activity of the vital principle, it ought to be a chief precautionary rule to guard as much as possible both against consumption of the vital principle itself, and the pernicious effects that may be produced on the constitution. The loss of the powers may be repaired by restorative diet, and time for reparation may be obtained by rest. Care must be taken to maintain the organization in its proper relation to the vital principle, and to external stimulants. If there be direct feebleness, an actual deficiency of vital principle, the sedative means of rest and sleep are required; but not to prove hurtful they must be employed only in a certain degree; also strengthening means which do not stimulate. In indirect feebleness, however, the strengthening means must be combined with gentle stimulants.

B. STRENGTH-



B. STRENGTHENING THE TOO WEAK ACTIVITY OF THE VITAL PRINCIPLE.

We shall here consider that state where the activity of the vital principle is impeded, or insufficient for maintaining life.

§ 329.

The vital principle is never ENTIRELY INACTIVE. This would be altogether contrary to every idea of life (§ 298). Neither can its activity, in the proper sense of the word, be suppressed or totally destroyed, which would be the same thing as suppressing life; but the free manifestation of this activity may be more or less impeded, which HUFELAND\* calls a confined state of the vital power.

§ 330.

Here we have a state in which the vital principle is far less active, in various degrees, than in the sound state, that is, feeble life; or its activity is irregular, immoderate, or too weak. This vital activity, however, is never totally impeded, but sometimes in so great a degree that it is very difficult for our observation to distinguish such a state from actual death, especially as this extreme degree of feeble vital activity takes place in the principal organs, when, according to all the hitherto known methods of examination, we observe no pulse in the heart or the arteries; no respiration; no re-action to the impression of stimulants; and yet a certain degree of vital activity exists, and consequently of re-action.

\* Pathogeny.

This feeble state of vital activity we find, in a far less degree, in cases of fainting and real nervous fevers.

### § 331.

The state of impeded activity of the vital principle is a far more evident proof of DIRECT FEEBLENESS, than that of immoderate vital activity. We find it in cases of actual lesion, particularly in mechanical injuries of organic parts.

### § 332.

The grounds of impeded, insufficient activity of the vital principle, lie either in a deficiency of this principle itself, or merely in impediments; external and internal causes which oppose its free action.

1. DEFICIENCY OF THE VITAL PRINCIPLE produces direct vital feebleness. This deficiency becomes, at length, so great, that very little re-action can follow; as in extreme old age, or in persons who are dying.

2. IMPEDED ACTIVITY OF THE VITAL PRINCIPLE by external or internal causes.

a) INTERNAL CAUSES lie in the interior of the organization. They are stimulants which exist in the body: as the motion of the blood, corruption of the juices.

b) EXTERNAL CAUSES are external stimulants, which exercise an action on the body from without.

### § 333.

All these causes depend on the state of the organization, and the changes which take place in the interior of the organization. The consequence of these changes

changes is this impeded activity of the vital principle. From this we may deduce the following indication :

TO REMOVE THE IMPEDED AND INSUFFICIENT ACTIVITY OF THE VITAL PRINCIPLE.

§ 334.

To attain to this end, we must accomplish the following points :

1. Remove the impediments which confine the vital activity.
2. Employ means to excite the vital activity itself.

§ 335.

Both these points must be intimately combined with each other. This double object we are not always able to accomplish ; and we must be contented with attaining to the first only in part. Often we have no other resource than the application of means for exciting a stronger vital activity. But while these means, or rather the stimulants employed, have an action which tends to increase vital activity, they contribute, by their action also, to remove the impediments.

§ 336.

To accomplish the first point, an accurate knowledge of the remote causes of the feebleness will be necessary ; also an intimate acquaintance with the existing case, with the patient, the state of his body and mind, their relations, and other circumstances. By removing the impediments, the whole object of the cure will be attained. But sometimes these impediments are insuperable, either through some defect in the patient, or certain concomitant circumstances.

## § 337.

A proper application of stimulating and strengthening means, which will be more accurately defined in the following chapter, may serve for accomplishing the second point.

## § 338.

It is of importance, in that asthenia which arises from impeded or insufficient activity of the vital principle, to distinguish the DIRECT from the INDIRECT state.

## § 339.

In the first case, the activity is so confined, that the direct application of stimulating and strengthening means is necessary to render it again free, as in nervous fevers; this is the higher degree of asthenia, in which not only irritability, but also the power of action is weakened. (§ 262. § 360.)

## § 340.

In the other case, the grounds of feeble vital activity lie more in OBJECTIVE IMPEDIMENTS, which may be the case where there is complete vital strength. It is indirect feebleness, from an excess of excitement. To this head belong all those diseases which BROWN deduces from indirect debility. In this case, the object of cure must be to remove the impediments.

## § 341.

With proper caution and observation of the existing case, the so called debilitating means may, therefore,

fore, be employed; but the physician must always keep in mind, that he is treating an asthenic state, and consequently that the strengthening and stimulating method, properly so called, must be aptly combined with these so called debilitating means. There is here no contradiction, as might appear; and I purposely employ the term so CALLED debilitating means, because, though these means, under other circumstances, debilitate, they act here as real corroborants. We may here call to mind the use of bleeding and emetics in diseases of indirect debility\*.

§ 342.

Locally employed, such so called debilitating means may be of use, especially when impeded vital activity relates only to individual organs; that is, when such organs suffer most. Hence the good effect of emetics in such a state of the stomach.

The local application of these so called debilitating means, confined merely to individual parts of the body, may be more readily used in certain cases, as the whole system will thereby suffer less (§ 323.)

§ 343.

It must never be forgotten, that in the application  
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\* Facts must here decide. The puerperal fever, whether gastric or putrid, &c. for this system makes no distinction, is certainly, according to Brown, one of the first asthenic diseases. We are informed that Doulcet saved from almost certain death, more than two hundred women who had been brought to bed in the Hotel Dieu, by means of ipecacuanha, and some detergents, and as a proof that the patients were saved by these means, it is added, that five or six women who would not take ipecacuanha died. *Frank. Med. Wochenblatt*, 1792. *Vogel's Handb.* II. 278.

of these means, they must NOT BE CONTINUED TOO LONG, lest actual feebleness should be excited; also that the dose, the degree in which they are applied, must be accurately proportioned to the state of the vital principle and of the organization. The use of them must be omitted, as soon as the impediments to complete vital activity have been removed. The use of these means, in the before mentioned cases, is necessary, and cannot be supplied by the exclusive employment of the stimulating strengthening method.

## II. ORGANIZATION.

### § 344.

We must direct our attention not only to the vital principle, but also to the organization.

It has been already proved, that the method of cure will be only partial, if we do not take into consideration, at the same time, the vital principle and the organization.

By organization we understand, the finer structure of a body of a certain kind, by which it is fitted for being acted upon by the vital principle. (§ 76.) Thus there is an organization of plants, and another of animals.

Organization is a necessary condition of life; consequently the manifestation of the vital principle, the manner in which it acts in a body, depends on the nature of the organization, its structure, and the relation of its parts; and this holds good both, in general and in regard to the organization of whole genera, as to the individual organization of a single body.

§ 345.

The structure, constitution, and nature of individual organs, determine the particular manifestations of the vital principle in them, by which such an organ is rendered fit for its peculiar functions. It is owing to the particular structure of the eye, that it is capable of seeing; and to that of the stomach, that it is capable of digesting. This particular destination of individual organs remains the same in disease, only that the activity of the vital principle in them is more or less impeded.

§ 346.

We thence see what great influence our body has upon us, or rather that, considered as an organized being, it forms a part of us. The structure, and even external form, the consistence of the solids, the admixture of the fluids, the mass of the body, and the proportion of the fundamental component parts among themselves, are not the same in regard to the manifestations of the vital principle.

We must consider this organism as animated. Wherever there is life, there is motion and activity. The organic parts are consequently in a continual state of motion and activity, increase and decrease, expansion and contraction of the fibres, incessant excitement, and ever active counter-action, continual variation and change.

§ 347.

Of great importance, therefore, are the nature and state of the organic parts; the tension or relaxation  
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of the vessels; solid or too tender cohesion of the component parts of the fluids; the free or impeded activity of the organs; the mode in which the animal functions are carried on; the secretions, excretions, nourishment, digestion, &c.

According to these circumstances, the organization is more or less fit both for external stimulants, and for the action of the vital principle.

### § 348.

There is a **STHENIC** and **ASTHENIC** state of the organization.

### § 349.

In the sthenic state, we find a good constitution of the structure and admixture of organic parts; and, therefore, the greatest susceptibility for life, and unimpeded fitness for the action of internal and external stimulants.

### § 350.

In the asthenic state the organization, that is, the organic parts, are injured.

#### 1. MECHANICALLY by external force, lesion.

The restoration of destroyed and lost parts, the healing of severe wounds, which is effected by the so called power of reproduction, or the healing power of nature, properly the vital principle, exhibit to us, in a very clear light, the difference between animate and inanimate, organized and unorganized bodies. This salutiferous effect either does not take place, or takes place in a very weak degree, when the activity of the vital principle is impeded; as in diseases of the utmost debility.



2. CHEMICALLY, changes in the admixture and proportion of the organic component parts. This effect is observed in internal disorders. We have an instance of it in real putrid fevers, where actual colliquation, a disposition to decomposition, exists.

§ 351.

The consequence of this lesion of organic parts is a loss of susceptibility for the vital principle, or at least an irregular action of this principle in the organization. Hence its activity is sometimes too violent, and sometimes too weak.

When the organization is injured, its susceptibility for external and internal stimulants is also changed; so that their impressions are received and re-acted upon in a manner totally different from what they are in the natural state. Hence there is sometimes immoderate, and sometimes too weak irritability and reaction.

§ 352.

In treating the asthenic state, we must endeavour, therefore, to remove these deviations. There are, however, no means by which we can exercise an exclusive action on the bodily mass, when we have to do with an animated body; but we endeavour to heal its wounds. Mechanical injuries belong to the external healing art (surgery); the internal or chemical, if we may employ that term, are the object of medicine, properly so called.

§ 353.

When the faculty of being affected by stimulants is  
not

not lost in a very great degree, we may strengthen the relaxed fibres, soften the rigid, remove bodies, which produce a noxious effect by mechanical pressure; and, in particular, by a proper regimen in regard to those external things which are in more immediate contact with the body, may at any rate remove those causes which injure the organization. The consequence of this mode of treatment will be freer vital activity. To this head belong precautions in regard to the air, heat, the external covering of the body, nourishment, rest, motion, &c.

## § 354.

Our care relates not only to the organization and body in general, but also to the **PRINCIPAL ORGANS**, which are necessary for maintaining life. By cleanliness, washing, and bathing, we promote a good state of the organ of the skin; by breathing pure air, we preserve our lungs; by proper rules in regard to nourishment, we take care of the stomach; and by moderate activity of the soul, we provide agreeable mental stimulants to the organ of the soul. We must not, however, entertain any idea of specifics or medicines that shall exercise an exclusive action on an individual organ. We produce the effect by acting upon the whole organization at the same time.

## § 355.

We shall now offer a few remarks on the **ANTI-ASTHENIC METHOD**.

The idea which we have of the relation of the strengthening method to the existing debility, must first

first be more accurately defined. It is, indeed, true, that wherever there is debility we must strengthen; but the choice of the strengthening means to be applied requires great caution. It is not always the properly so called strengthening, stimulating, animating things, such as cinchona, wine, opium, flesh diet, &c. that are to be employed, but we must use, as has been said, the so called debilitating means, in order to strengthen.

§ 356.

What infinite mischief must a misconception of the BRUNONIAN method occasion, in the hands of those physicians who have not previously secured themselves from such practical errors by sufficient theoretic knowledge; and who blindly venture into a path where, according to a beautiful expression of the great Frank, "coals are concealed under deceitful ashes\*." On the first view, this system has many attractions for empirics; and may readily lead them to use strengthening and stimulating medicines on every occasion. They will return to their mithridate, corroborating tinctures, and the brandy bottle, and we shall be transferred to the period of a Sylvius. Brown has put into the hands of children a weapon which ought to be wielded only by men. It would be vain to justify the unconditional use of this mode of treatment, by saying, that the greater part of our present diseases are asthenic; and that it is easier to lessen the feverish emotions, excited in consequence of the use of immoderately

\* *Latet ignis sub cinere doloso*, in the preface to his son's *Ratio medendi*.

strengthening and stimulating, that is, heating things, by an opposite debilitating mode of cure, than to remove the existing debility, and to elevate the depressed powers. Is not the febrile state, excited by too violent stimulants, a far higher degree of debility than natural debility? Will not this inconsiderate excitement, and the too great activity of the vital principle thence occasioned, tend to exhaust? But notwithstanding these objections, which relate merely to misunderstanding a method of cure to which we ought to apply more than to any other what Boerhaave so often said to his scholars, *si modum nescis abstinere*, the merit of the eminent founder of this doctrine must still be acknowledged. By a prudent application of its principles, we shall be able to remove diseases which have hitherto been accounted incurable. It teaches us the use of the stimulating, strengthening method, the true mode to be employed in cases where the life is endangered. But it favours of egotism when his scholars, induced by his little to be commended example, so shamefully degrade the services of the most eminent physicians, such as a Boerhaave, a Sydenham, a Tissot, a Zimmermann, a Stoll, a Hufeland, &c. Without suffering ourselves to be misled by implicit belief in authorities, we ought to adopt the good wherever we find it, and to weigh it in the scale of prudence, according to our knowledge of nature.

## § 357.

A retrospective view of the career which has been passed through, will enable us to form a more just opinion of our method of cure. In the asthenic state we find the vital principle sometimes too violent, and  
sometimes

sometimes impeded in its manifestations ; also lesion of the organization. Our object is to remove those causes which impede the free manifestation of the vital principle, and to heal the lesion of the organization. But this object we are not always able to accomplish in that degree which is necessary for complete restoration to health. Many of the impediments it is impossible to remove.

We shall now turn to the second indication : to restore the free activity of the vital principle. This object we endeavour to accomplish by stimulants. These stimulants are perceived in that degree for which the organization is fitted ; but the susceptibility of irritation in the organic parts depends both on external relations, the action of the atmosphere, &c. and on the internal action of the vital principle. Here the two chief indications are united ; the regimen of external relations, and the effects on the vital principle.

§ 358.

All these different objects are so many auxiliaries of nature, which the physician must promote as far as possible, and which he must unite together in one point. They evidently shew, that the end will not be obtained, when we flatter ourselves with the idea of removing the asthenic state, merely by opiates, spirituous medicines, and animal food ; and that it is often throwing oil into the fire, when, through misconception of the Brunonian doctrine, we do not endeavour, in asthenic diseases, to remove the impediments, the remote causes of debility, which we certainly cannot overcome by the so called stimulating,

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strength-

strengthening method, as by that plan we rather shut up the evil in the body than expel it. The gastric method, in improper hands, has done great mischief; numbers of people have been hurried from the world by purgatives, and the case has been the same with bleeding; but Brunonianism, applied unconditionally, certainly does still more mischief, and it is a most pernicious conceit to reject evacuants, emetics, bleeding, digestives, and vegetable diet, as insufficient, and in a GENERAL SENSE, to class them among the debilitating means, when they are to be considered rather as means which lessen the excess of the activity of the vital principle, or of irritability, and ought therefore to be classed among the so called, debilitating means only, in opposition to the so called, stimulating and strengthening means. BROWN, himself, so far from rejecting these means, admits the necessity of them in many cases, which he deduces from asthenia. He therefore makes a distinction between direct and indirect asthenia; but his disciples sometimes pursue this erroneous method, when they are not able to distinguish sthenia from asthenia, but see feebleness every where, and prescribe nothing but stimulants and strengthening.

## § 359.

These two indications, both the removing those causes which impede the vital activity by the so called debilitating means, detergents, emetics, bleeding, incising and resolving medicines\*, &c. and the direct

\* These medicines are indispensably necessary; but in regard to their division into *resolventia*, *incidentia*, &c. our *materia medica* stands in need of some reform, on which I shall make a few observations in the Third Part.

excitement of the activity of the vital principle, must be united with each other. The union of both views, for the accomplishment of one end, is the summit of the art. Sometimes one of these indications may be superseded by the other; sometimes they are both of utility; and sometimes they may both be employed in the same disease, but at different times, without being blended together. The clue to guide the physician in this labyrinth, is a careful observation of the state of the vital principle, and of the organization.

§ 360.

TREATMENT OF DIFFERENT ASTHENIC STATES.  
We distinguish the following states :

I. IMMODERATE ACTIVITY OF THE VITAL PRINCIPLE, OR IRRITABILITY AND WEAKENED POWER OF ACTION IN THE ORGANS. (78, 80, 82.)

The indication is : To lessen the excess of irritability, and to strengthen the weakened power of action. This will be effected by the stimulating strengthening method.

This is the case in continued spasmodic affections, where the organic parts suffer by the long duration of a state of too violent irritability; or, in general, in a bodily constitution, where great irritability, relaxation, and viscidities exist at the same time, as in children; in bilious and gastric fevers also, where there are great accumulations of crudities, we observe sometimes a great deal of the nervous. The application must be made with the utmost caution that the excess of activity may not be increased by stimulants. Such corroborants, therefore, must in particular be chosen as stimulate the least; or stimulating medicines must be

given in such doses as may produce a narcotic, sedative effect. This end will be best accomplished by the smallest relative doses of opium. But these means, employed alone, will debilitate the power of action in the organs so much the more, and must therefore be combined with strengthening means; a strengthening diet must be employed at the same time. These means must be incessantly employed, so that the sinking of the powers, when the effect of the first dose ceases, may be prevented by the following; and this must be continued till the critical state is removed. In continuing this method, stronger stimulants must be progressively employed to maintain the vital principle in a sufficient degree of activity. (§ 377).

The doses, and, in general, the application of the strengthening method, in this case, require extraordinary caution: in too strong doses the means will become noxious stimulants, by which the already too great activity will be increased, and the power of action in the organs will be more weakened. This holds good both in regard to food and to medicine.

But it is not always that the positive strengthening method can be employed. We must endeavour to remove the causes of suppressed organic power of action, by evacuation and inciding viscidities. On this is founded the process in the so called gastric nervous fevers.

2. IMMODERATE ACTIVITY OF THE VITAL PRINCIPLE, OR IRRITABILITY AND WEAKENED POWER OF ACTION IN THE ORGANS, BUT NOT IN A HIGH DEGREE.

INDICATION. To lessen the immoderate activity.

In this case, the before mentioned debilitating means,



means, as they are called, may be admitted; but as in the progress of the disease the power of action becomes more and more weakened, proportionally strengthening means must be applied, first combined with resolvents or gentle evacuants; such, for example, as cinchona, with sal ammoniac or rhubarb.

3. IMPEDED OR DEFICIENT ACTIVITY OF THE VITAL PRINCIPLE, OR IRRITABILITY AND WEAKENED POWER OF ACTION IN THE ORGANS.

INDICATION. To excite free vital activity and strengthen the organs. The diseases of this class are malignant nervous fevers. The symptoms of this state are drowsiness, hebetude of the senses, stupidity, a melancholy look, uncommon indifference, extreme debility, incapacity to discharge the usual functions, and the utmost lassitude. Volatile stimulants in strong doses are required, that activity may be excited as soon as possible. When this is accomplished, strengthening means must not be forgotten in order to support the organization.

The art of reviving from apparent death depends on the like principles. This state, in general, is the highest degree of asthenia, and will admit of the stimulating strengthening method in its full extent. We must, however, at the same time, endeavour to guard against those stimulants which weaken the power of action, and to employ the stimulants only in the degree necessary for restoring such an activity of the vital principle as is requisite for maintaining and preserving life. As soon as we perceive by the external symptoms (vital signs) that we have attained to this degree, the dose and strength of the stimulants must be lessened, else there might arise a pernicious vital

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activity,

activity, disproportioned to the general debility, or a mortal excess of that activity. For this reason the already commencing animation of persons apparently dead, is so often checked by the continuation of too violent excitement, which, however, was before necessary in the state of confined vital activity; or by the application of violent stimulants in the period of commencing perceptible vital activity. (§ 374.)

4. IMPEDED OR DEFICIENT ACTIVITY OF THE VITAL PRINCIPLE, AND IN A LESS DEGREE WEAKENED POWER OF ACTION IN THE ORGANS.

INDICATION. To render the vital activity free, and to strengthen the weakened power of action in the organs.

In this case stimulants may be employed with less caution. The so called gastric means are combined also with the strengthening. Thus in diseases where the organs of digestion are not much weakened, rather larger doses of cinchona may be administered. On the other hand, when the patients are debilitated, or have received severe wounds, moderately stimulating means only can be admitted.

All these different states may successively exist in a disease, and consequently will require a change in the method.

## CHAPTER II.

### OF THE STIMULATING, STRENGTHENING METHOD OF CURE, OR THE MEANS OF STRENGTHENING TOO WEAK IRRITABILITY.

#### § 361.

IF properly applied, the stimulating, strengthening method, even in the most desperate cases, may effect a cure; and though perfect restoration of the health is not possible, it is at least the supporter of feeble life, as it prevents the total exhaustion of the vital principle, and preserves the vital susceptibility of the organs as long as they are capable of irritation. Brown, therefore, is entitled to no small merit for giving to this method greater extent. But that it may not be prejudicial, **ACTUAL VITAL DEBILITY** must exist. I must here, however, remark that our first physicians, such as a Stoll, a Vogel, a Frank, and a Hufeland, were acquainted with the application of this method long before the Scots system was introduced into Germany. For the truth of this I shall refer to what the above authors have written on the treatment of malignant nervous fevers, where they teach us, at the same time, the necessary rules of precaution. The stimulating strengthening method of cure is certainly capable of farther extension; and this is necessary in the present age of debility. But it requires an acute practical eye to discover the existence of actual debility; to distin-

guish direct from indirect, and real from apparent feebleness; which, as is well known, is not the province of every one. Equally great talents are required to apply this method properly; to determine the degree of excitement; and, in general, to know whether the strengthening stimulating method can be employed in its whole extent, and to compare the indications and counter-indications with each other.

## § 362.

The prejudicial consequences of a misapplication of this method, which we so frequently observe in the present period, by an unconditional adoption of the Brunonian principles, ought to deter every physician, not possessed of these talents, from employing it. He ought to know that he takes in his hands a destructive poison, which he must either convert by his art into a beneficial panacea, or leave untouched. To employ stimulating and strengthening means where there is an inflammatory state from sthenia, where the vital principle is in full activity, or rather immoderately active; in bilious fevers, gastric impurities, &c.; and for patients sthenic by the nature of their constitution and previous mode of life, is pouring oil into the fire; the inflammation will be increased, and soon terminate in gangrene; congestions will be accumulated, and a violent determination of the blood towards the heart and the brain will take place: hence bursting of the vessels, hæmorrhages, apoplexy, insanity, constriction of the breast, suffocation. Besides, the too great activity of the vital principle will be increased to excess; and by this immoderate exaltation of irritability, the power of action will be weakened in the same degree;

all

all proportion between action and reaction will be destroyed. The vital functions will be carried on therefore, in an irregular manner, and, on account of their deficient activity, there will arise obstructions in the vessels, and relaxation of the solids, as the vital power does not exercise sufficient action. Watery particles are accumulated, and secretion and excretion become irregular and deranged. Hence there arise so often after heating medicines, and after fever has been checked by the use of spirituous liquors, dropsy, and ulcers. Great mischief is occasioned by this method in spasms, produced by too great activity of the vital principle: a distinction must, however, be made between this kind of spasms and those arising from a deficiency of the vital principle in real asthenia. The spasms are thereby increased in an extreme degree, and, in particular, the determination of the blood towards the head is promoted, so that epileptic affections are combined with idiotism, or degenerate into apoplexy. The pernicious consequences of flux checked by heating medicines, has been fully proved by ZIMMERMANN\*.

The faculty of being acted upon by stimulants is at length totally destroyed, if the method of exciting it anew, by the repeated application of stimulants, be too long continued; and at last it will be impossible to bring it into activity by any means whatever. In this manner death will ensue. Hence it happens that medicines which are unnecessarily administered, without measure, in the sound state, produce no effect in disease.

Employed unconditionally, the stimulating, strength-

\* *Über die Ruhr unter dem Volke.*

ening method is rather the means of shortening than of prolonging life ; for what can waste life more than unnatural and immoderately exalted activity, combined with the most violent irritation of organic parts, while the vital susceptibility of the organization is destroyed ?

Provided there is not a deficiency of the vital principle itself, it is easier to call forth and exalt the impeded and weak activity of this principle than to depress its too great activity, especially in cases of actual vital debility, where the injury occasioned by too violent stimulants can not easily be repaired. We must not imagine that when we have increased, in an unnatural manner, the vital activity, by an improper application of stimulating or strengthening means, so that the before mentioned bad consequences have already begun to take place, that it will be easy to change this state, and to lower it by debilitating means. Nature will not suffer herself to be sported with in this manner. The consequences of the faults committed in this respect do not always immediately follow, and unfortunately take place when no change is possible. Sometimes they are, at first, attended with no striking symptoms ; and therefore may readily escape our observation.

Besides, by these stimulants the powers are wasted, and the organization is destroyed, so that no reparation of what has been lost is possible.

In all cases, the application of stimulating, strengthening means requires the utmost attention of the physician to their operation, and, in particular, he must be able to distinguish whether the activity of the vital

principle is actually exalted in such a degree that the patient is, as it were, reanimated, that the vital functions are discharged with more activity, and that the power of action is rather increased than weakened. Every thing depends on raising the depressed vital principle to a mean degree of activity, and guarding against immoderate activity.

§ 363.

In general, IMPEDED OR INSUFFICIENT ACTIVITY OF THE VITAL PRINCIPLE, whether it be the consequence of an actual deficiency of the vital principle, or of impediments to its activity, indicates the use of the stimulating, strengthening method; but a distinction must be made between these two states. In such states, this method can do great things; as for example, in malignant nervous fevers. Even in cases where signs of commencing death have already appeared, in the utmost debility, it will sometimes preserve life. Here no other resource is left than to raise the depressed vital principle, and maintain it in an exalted state, until nature has recovered herself, and the process of life has been put into complete activity\*.

\* As Frank says respecting the malignant nervous fever: In ipso perniciosæ complicatæ decursu, cum cortice talia subinde jungenda sunt, quæ symptomatibus præcipue opitulentur. In summo interim furientis morbi periculo, ne præceps vitam salvandi aufugiat occasio, indicationibus aliis, quam vitalibus satisfacere non licet, et omne curationis punctum in futuro, facili lethali febris insultu per corticem avertendo potissimum est. Nec purgantia febrifugo mixta, antequam reversuræ febris periculum dissipatum fuerit satuta sunt, &c. *De cur. hom. morb.* I. 69.

## I. STIMULANTS.

## § 364.

We shall first endeavour to explain the meaning of stimulants.

## § 365.

By **STIMULANTS** is understood, in physiology, every thing that exercises an action on the organism; that is, on the animated animal matter (§ 51.) The difference of the action of external powers on dead and animated matter has been already shewn. In the present case, we shall remark the relation between animated animal matter and stimulants.

## § 366.

According to this natural definition of stimulants, which the physician ought always to have before his eyes, all means which produce changes in the animal nature are properly **STIMULANTS**. Of this kind are emetics and laxatives.

By the term irritation, we must not always understand a **VISIBLE** contraction of the fibres, which however always follows the action of stimulants on the organization, but in so imperceptible a degree as to escape our senses.

## § 367.

As we deduce the names and classification of our medicines from such of their effects, as are most perceptible to our senses, we give the name of **STIMULANTS** to such things as excite the activity of the vital



tal principle in a degree perceptible by our senses. Among these are wine, opium, all the so called exhilarating, spirituous, heating medicines. Also such things which, by the action excited in the vessels of the skin, by means of the consensus of the other organs, increase the activity of the vital principle in general, as cantharides, sinapisms, &c.

Now, if we compare the mode of action of these stimulants with the diseased state, and at the same time keep in view the vital principle, and the organization, we shall be able to form some opinion how far they are applicable.

§ 368.

Stimulants serve, in general, to bring again into proper play the inactivity, or rather lessened activity of the vital principle, to restore susceptibility of irritation, and to excite irritability. But the application of them requires caution, that the power of action may not be too much weakened at the same time. Thus, for example, the irritability of the stomach is excited by spirituous liquors, or spices; but by an improper application, its power of action is weakened; an appetite is created, but the power of digestion is lessened.

§ 369.

The degree of the stimulant to be employed must not be determined by the degree of the inactivity of the vital principle; but by the measure of the existing quantity of the vital principle.

§ 370.

## § 370.

The whole will depend on this question; whether the inactivity be the consequence of the vital principle being depressed or of an actual deficiency of it.

## § 371.

In the latter case, the vital principle, by too strong stimulants, will be easily exhausted, and irritability destroyed; yet, in this state of actual debility, stimulants are necessary to maintain life, or at least, to prolong it for a certain period. Under such circumstances, they must be employed with great prudence, and combined with strengthening means; they must not be used too incessantly, that nature may have time to collect her powers; and they ought, above all, to be applied locally to individual organs, in order to excite general vital activity. On this is founded the use of vesicatories, in the highest degree of asthenia. The vital activity excited in individual organs, is thus communicated to the rest. Attention must be paid here, in particular, to the principal vital organs: the lungs and organs of digestion. Hence the great effect from inhaling vital air, and from the application of vesicatories to the region of the stomach.

We must choose, in particular, for this purpose, stimulants which excite and strengthen at the same time; and among these, wine deserves the first place.

## § 372.

The application of stimulants in the case where the activity of the vital principle is merely oppressed, is different. Something is to be expected here from a  
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good natural constitution, and direct action may be employed to restore vital activity, in order that the confined state of the vital principle may be changed. In this state the indications are,

1. TO REMOVE THE IMPEDIMENTS WHICH PREVENT FREE ACTIVITY.

2. THE DIRECT APPLICATION OF STIMULANTS. Sometimes, however, the impediments cannot be entirely removed.

§ 373.

In the application of the stimulants, the principal rule is: THE MORE NUMEROUS THE SIGNS OF OPPRESSED VITAL ACTIVITY, AND THE FEWER THOSE OF EXTERNAL LIFE, THE HIGHER IS THE DEGREE OF EXCITEMENT WHICH MAY BE EMPLOYED; BUT THE MORE NUMEROUS THE SIGNS OF EXISTING VITAL ACTIVITY, THE MORE CAUTIOUSLY MUST WE PROCEED WITH STIMULANTS.

§ 374.

In the state of impeded activity of the vital principle, susceptibility of irritation is suppressed; reaction is destroyed, and common stimulants make no impression. The application of stronger stimulants is therefore necessary to put in motion the machine which is, as it were, at a stand. This state may proceed to a very high degree. Some persons in cases of apparent death are insensible to the most painful stimulants, and even to ignited iron.

This observation is of great importance, in the treatment of gastric nervous fevers, combined with extreme

treme debility, and a great degree of impeded activity of the vital principle. According to the usual method of the bad gastric physicians, evacuants are used, notwithstanding the continual sinking of the powers; and by others who are less injudicious, always emetics. Emetics being too weak to overcome the *vim inertiae*, occasioned by great viscidities, often produce no effect, and occasion a colliquative diarrhœa, under which the powers are totally lost. People wonder at the increase of the disease, and the death of the patient, who is, however, treated so methodically. We read, therefore, respecting so many gastric, putrid epidemiæ: "All those who were not affected in consequence of the emetics given them died." But here the vital principle is too inactive, and the impediments to its activity, which consist partly in accumulations of foreign matter, and partly in a want of susceptibility in the organs for the vital principle, are so great, that no common emetics or purgatives can remove them. Empirics sometimes employ exceedingly large doses of these medicines, at the hazard of the lives of their patients, to overcome the great viscosity; but such application produces sometimes inflammation and gangrene, with all their consequences and affections, the end of which is death. The real physician, in order to give activity to the vital principle, endeavours to remove the impediments, and then evacuants may produce a proper effect, and without any danger. This end is accomplished by vesicatories, fomentations, bathing, and friction. Sometimes it is necessary to raise the disease to a certain height by means of stimulants; to increase the fever, in order that we  
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may be able to expel the crudities, when the passages of the body, the skin, bowels, &c. have been opened by greater activity of the functions of secretion and excretion: the consequence then will be a complete favourable crisis, which requires only to be supported. A very proper prescription on such occasions, is a mixture of Sydenham's laudanum, with tincture of antimony, given in drops, at short intervals, of half an hour or an hour: there sometimes follows an increase of fever, a stronger pulse, drowsiness, and raving; but these symptoms need excite no alarm in the physician; they are merely critical perturbations. By this method, I have saved several patients, who with the mere gastric, or strict antiphlogistic method, must have been lost.

§ 375.

In such a state, however, the most violent stimulants will be employed in vain, if the external impediments, which confine the expansion of vital activity, be not removed at the same time. Persons apparently dead, must be carried away from the scene of danger, and those suffocated must be conveyed beyond the sphere of the noxious vapours, before any farther means can be employed for their relief. When this first precept is fulfilled, restoration often follows of itself. Most has been done for maintaining feeble life, or prolonging it during a certain time, merely by removing the noxious causes.

§ 376.

Attention to the SIGNS OF THE EXISTING VITAL  
S PRINCIPLE,

PRINCIPLE, WHICH MANIFEST THEMSELVES, and which are a proof of its commencing activity, is of great importance in practice. This commencing vital activity is feeble; as is the case, in general, with every thing that commences, and under such circumstances we must employ all those rules of caution, which serve to direct our mode of treatment in regard to feeble vital activity, the consequence of feeble life. It is highly necessary, above all, to be exceedingly cautious in the use of stimulants. By violent excitement the feeble flame of life will be in danger of becoming extinct, as is proved by the often fruitless attempts to revive persons apparently dead, in whom the most favourable symptoms existed, and who were already half recalled to life. In the transition from an inactive state of the vital principle, to active life, we can never observe too much caution: it must be effected gradually, and the excitement must progressively increase, according as the vital principle manifests external signs of its activity, and according as perception of the external action of the stimulants becomes more lively, and re-action more active.

## § 377.

But stimulants are necessary in this state, to maintain feeble life, and to guard against a relapse into the former state of inactivity, or against death itself, which immediately follows when the necessary excitement is omitted. In a man struck by lightning, life was so weak, that the uninterrupted application of friction, during ten hours, was necessary before he could be brought to life; for on the least interruption,

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the traces of life immediately disappeared. It is, therefore, of great importance in asthenic diseases of the highest degree, that the stimulating and strengthening means should rather be applied frequently in succession, after short pauses, than seldom; so that when the action of one dose ceases, the action of the next in succession may commence, and leave no interruption. In this manner, the vital activity may be maintained, till it diffuse itself more and more throughout the organs, and until feeble life be completely active. Dr. JOSEPH FRANK \* recommends, very properly, in malignant nervous fevers, doses of cinchona and musk, every quarter of an hour. In this respect, the stimulating strengthening method, proposed by Mease † is of the utmost importance.

§ 378.

Another circumstance which tends, in a particular manner, to maintain feeble life, is changing the stimulants. When stimulants of one kind no longer produce an effect, and excite no more activity of the vital principle, there are still stimulants of another kind, by which the object may be accomplished: as for example, if camphor have no effect, musk may perhaps be of service. This cessation or suspension of susceptibility of irritation, depends on habit or hebetude occasioned by the long application of a stimulant. So far the cause lies in the organization, and nothing is necessary but another kind of stimulant, or

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\* See his *Ratio Medendi*.

† Ueber die Krank. von dem Bisse lotter hunde, Breslau, 1798, p. 92.

to change the mode of excitement. Thus, in electric cures, strong sparks may be called forth, when the influx of the electric matter no longer produces an effect. But inactivity of the vital principle may be the cause that re-action is no longer lively, and that stimulants of a certain kind no longer produce any effect: these stimulants, therefore, must be strengthened. This gradual decrease of inactivity, we observe in organs, which have been long kept in a state of UNINTERRUPTED activity, as for example, the organs of thought.

In diseases arising from debility, change of diet or of medicine is therefore often attended with beneficial effects. Without this change of stimulants, there is produced a state of rigidity and inactivity, which at last ends in lameness and death. In curing diseases, a great deal often depends on trifles: variations which apparently are of no consequence, have sometimes a great influence on patients, and give a new impulse to the vital principle.

### § 379.

Stimulants may be applied with advantage to organs which are in intimate connection with the rest; and thus, by the greater activity excited in the vital principle in them, activity is excited in all the systems, while the whole frame is re-animated. The organ of the skin has, in particular, a great influence on the system of digestion: inactivity of the stomach, in the case of a certain kind of indigestion, may be removed by a vesicatory applied to the back. How active is the organ of the soul in consequence of the consensus? Wieland freed himself several times from hypochondriac



driac affections, by severe mental labour, undertaken on purpose. A large vesicatory, therefore, applied to the back, is an excellent stimulant, which produces this effect, partly by the violent irritation it occasions, and which it diffuses over a great part of the surface of the skin\*.

§ 380.

There are some cases in which the uninterrupted application of weaker stimulants is necessary to maintain the feeble life; as we revive, by uninterrupted blowing, a fire ready to be extinguished, and which would be instantly so, if we withdrew the breath from it a moment.

But there are states also, where an interruption, or rather lessening of the excitement is necessary. This is the case in inferior degrees of asthenia, where the vital principle exists in a higher degree. Rest is necessary to collect the lost powers. A continual succession of stimulants blunts sensation, and this blunting may at length terminate in complete lameness.

§ 381.

To guard against this evil, the following method may be employed.

I. THE PREVIOUS EXCITEMENT MUST BE LESSENER FOR A CERTAIN PERIOD. By these means wasting of the powers is prevented. This lessening, where there is a pretty high degree of debility, may be employed much rather than a total interruption of the excitement; because by these means, that degree of activity

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\* See Hufeland's Journal der prakt. Heilk, Vol. IV. p. 312.

necessary for the continuance of life is preserved. After employing stronger doses of medicines, weaker must be administered, for a certain period; this rule holds good, in particular, in regard to diet. Thus patients after using a sthenic diet, animal food, wine, &c. are ordered to use an asthenic: mere vegetable diet is given them for some time, and a part of the stimulating food they have hitherto used is withdrawn.

2. THE EXCITEMENT MUST BE INTERRUPTED FOR A CERTAIN PERIOD. This method must be employed only when an inferior degree of asthenia exists, and when life could not be maintained by its own excitability, unless supported by external stimulants. Such a pause is often useful, so that stimulants which before produced too little effect, may occasion sufficient excitement.

### § 382.

I must here call the reader's attention to the TEMPORARY application of stimulants, which is so efficacious in asthenia, and by which hebetude of the susceptibility of irritation, and the lesion of organic parts, which must ensue from uninterrupted excitement, and partly the exhaustion of the vital principle are prevented.

### § 383.

In the last place, the excitement is increased for A CERTAIN PERIOD. Increased excitement, if continued too long, would, however, produce what we wish to guard against.

### § 384.

## § 384.

CHANGING THE DEGREE OF THE EXCITEMENT, by applying sometimes stronger and sometimes weaker stimulants: sometimes lowering the excitement below the usual degree in which it has been before employed, and sometimes raising it far above that degree, is of great utility. It ought to be observed, that it is properly this alternation which increases the vital activity, as by such combination stimulants are far more active than when employed separately.

Several organs must be excited at the same time, that the vital principle may be put into greater activity. Thus, vesicatories are applied to several parts, and friction used over the whole body; thus, in phthisipneumony, the use of internal medicines is supported by vesicatories, and the cautery. By this equal excitement of several organs, the uniform diffusion of the vital principle is promoted; and general life is excited in the whole body. On the other hand, exclusive excitement of individual organs impedes the communication of the vital principle to the rest, and maintains the state of inactive fixed life. This observation relates, in particular, to the treatment of persons apparently dead. We must not be contented with merely employing individual stimulants, but by the combination of several, must put the vital principle into activity. Besides, in many organs, the vital principle may be in a less fixed state, easier to be excited; and, on account of the consensus, excitement may be necessary in several organs, to put the vital activity of the one into play by that of the other. This method requires some caution in real direct

asthenia, in order that the weak vital principle may not be exhausted by too great excitement \*.

### § 385.

The STIMULATING MEANS must be combined with the STRENGTHENING METHOD. Various corroborants are, at the same time, stimulants. The object is, to repair the consumption occasioned by the too great, or at least too brisk activity of the vital principle.

### § 386.

In this combination of the stimulating and strengthening method, we must be guided by direct or indirect debility. In the first case, the quantity of the stimulating means must be less; in the latter greater: the stimulating must always be combined with the strengthening, particularly in the first case, else the excited vital activity would soon cease to act. When the vital principle, without being weak, is in a confined state, as in apparent death, stronger stimulants are necessary in order to render it free, and the strengthening means cannot yet be applied; but the more the vital power is expanded, the more ought the stimulating means to be lessened, and the strengthening method should then be applied. The object here is, merely to maintain the feeble life which has been excited. Stimulants now serve only to preserve the

\* I have treated convulsions of long standing with great success, by applying from four to six vesicatories at once to the arms and legs; some of the places it was necessary to keep in a state of suppuration, others of them were healed, and new vesicatories applied.

the vital activity which has been produced; but the strengthening means to support the continuance of life.

§ 387.

The rule, that, at first, weak stimulants must be employed, and that they ought gradually to be strengthened, holds good in general. This method, indeed, in most diseases, is the surest, as the vital principle will not be exhausted by too strong excitement; but in many cases restoration, in this manner, would be neglected. By the long continuance of excitement, even though weak, susceptibility of irritation would be blunted, so that the application of stronger stimulants afterwards would be attended with no effect. We must keep in mind the principal law, in regard to the employment of the stimulating strengthening method: **TO USE THOSE STIMULANTS WHICH ARE SUFFICIENT TO EXCITE A MODERATE ACTIVITY OF THE VITAL PRINCIPLE.**

§ 388.

But, to follow this rule, we must take into consideration, the state of the vital principle.

We must here make an accurate distinction between the two following points:

1. THE EXISTING SUM OF THE VITAL PRINCIPLE.
2. THE DEGREE OF THE CONFINED ACTIVITY OF THE VITAL PRINCIPLE.

The former may be sufficient, and yet the vital principle be impeded in its manifestations. If the activity of the vital principle, or irritability, be confined in a great degree, and consequently be very insufficient

sufficient for animating the body completely, stronger stimulants are immediately necessary to remove these impediments. Susceptibility of irritation, in this case, is so very small, that it can be affected only by the strongest stimulants: it is by these alone that re-action can be excited; that is to say, that the vital power can be rendered perfectly active. In such a state, by deferring too long application of more powerful means, restoration would be retarded. Various cases of apparent death may serve as examples. This state is observed in bodies where there are great relaxation and viscidty. In such cases injections of tobacco might be employed.

## § 389.

We must never forget to lessen this violent excitement, as soon as perceptible traces of the activity of the vital principle begin to be manifested; otherwise we shall run the risk of extinguishing the feeble flame of life, which just begins to gleam. Much less must we, in such cases, increase the excitement. On this depends the treatment of those who are beginning to recover from the state of apparent death.

On the other hand, where the vital principle is completely active, or where traces of irritability appear, and re-action is exceedingly lively, we may begin with a weaker degree of excitement, and GRADUALLY increase it, as the re-action becomes lessened.

## § 390.

We must attend, however, not only to the **STRENGTH** but rather to the **KIND** of stimulant. What cannot be effected by the strongest stimulants may be accomplished

complished by changing them. Many things are strong stimulants to some, and yet do not affect others.

The cause lies in the INDIVIDUAL SUSCEPTIBILITY OF THE ORGANIZATION FOR CERTAIN STIMULANTS. In this respect, what wonderful instances of sympathy and antipathy! It is, therefore, of the utmost importance that the physician should be acquainted with these in his patients. Many persons are affected by exceedingly gentle stimulants; while some are not affected at all by others much stronger. On women, subject to hysterics, a burnt feather can produce a great effect. Idiosyncrasy, temperament, and inclination, are here to be taken into consideration, as well as the constitution of the body. How many are violently agitated, attuned to the highest joy, or the deepest melancholy, by certain ideas which have an effect on them alone. These mental stimulants may be employed, but with caution, to rouse from a state of insensibility. Sometimes we have no other means left to maintain feeble life. We must study people's favourite attachment. Persons fond of music, when apparently dead, may be aroused by music. We thence see how much may be effected by the peculiar activity of one organ, in order to remove diseases arising from suppressed irritability. The activity of the organ of the soul is particularly efficacious.

### § 391.

We must pay attention to the particular activity of individual parts of the body. This activity is either ORIGINAL, in the organic structure of the body; such,

such, for example, as the great sensibility of the eye; the peculiar sensibility in the region of the heart, in which the *plexus coeliacus* lies; or ACCIDENTAL, a consequence of the lesion of organic parts, or of changes in the interior of the organization. By these means individual organs of the body become exceedingly irritable, though irritable before in a very small degree. Hence the great sensibility of the stomach, or of the organ of the skin; the unnatural sensibility of the eye, the immoderate delicacy of the ear. Physical condition, education, diseases, and the mechanical or chemical lesion of organic parts, have here a considerable influence.

A knowledge of this peculiar susceptibility of stimulants is of the utmost importance to the physician, and enables him to make a proper topical application of stimulants to every irritable part. Thus in cases of apparent death, the eye has been excited by dropping into it some stimulating fluid, and in cases of confined vital activity, stimulants are particularly applied to the region of the heart.

### § 392.

Stimulants are either GENERAL or LOCAL. The former produce general changes in the organization, but the effects of the latter are confined to individual organs. Thus, for example, wine is a general stimulant; a vesicatory applied to the stomach a local. But this distinction only shews, that in many cases the stimulants applied to individual parts of the body produce changes in these, in particular; but that in other cases stimulants are employed for the purpose of producing general changes in the constitution.

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The action of the former, however, extends chiefly, but not exclusively, to individual organs.

§ 393.

But local cannot be substituted for general stimulants; and often when applied alone, they are of no benefit in general diseases. This is as ridiculous, as Brown says on another occasion, as if we should attempt to root up a tree by lopping off one of its branches. This may serve to shew the fallacy of the method followed by the common people, who think they can remove all internal diseases by external means; and who endeavour to cure the flux, or bilious fever, by plasters applied to the stomach, or pain in the head, which arises from internal causes, by external bandages. Mankind are led into this error by a partial knowledge of diseases, and confined notions deduced from individual symptoms.

§ 394.

Local stimulants, however, are indicated in the following cases:

I. IN LOCAL DISEASES; local affections of individual organs; for example, diseases of the eyes, flux, rheumatism. An important instance of irritability locally deficient in a high degree, is afforded us by the gutta serena. The only effective means in this case are stimulants: electricity applied externally and internally, belladonna, mercurials, &c.; but what serves still more to confirm this observation is, the late successful cure of the gutta serena by the external use  
of

270 II. ASTHENOCOMIC; OR,  
of a cold infusion of cayenne pepper, in the proportion of a grain to an ounce of water\*.

2. BY PARTICULAR ACTION ON INDIVIDUAL ORGANS, AND THE EXCITEMENT OF GREATER VITAL ACTIVITY IN THEM, TO PRODUCE GENERAL EXCITEMENT IN THE ORGANIZATION. Thus we exercise an action on the organ of the soul, on the stomach, on the skin, &c.

In the first case, in particular, local must be combined with general means; we must not depend on either of them alone, else we should effect only transient changes, an activity of the vital principle which would soon be again exhausted. Besides, the long continued irritation of individual organs produces at length hebetude in the susceptibility of irritation; a partial indirect debility, and makes such a part a point of commencement for disease (*atrium morborum*). To give a striking instance, what avail internal medicines in the diarrhœa, if attention is not paid, at the same time, to pure air?

### § 395.

Stimulants are partly SPIRITUAL, and partly PHYSICAL. Under the former, we comprehend those which, by exalting the activity of the powers of the soul, exercise an action on the organ of the soul: the passions, mental occupation, the exercise and exertion of the spiritual powers; under the latter, such as have an action on the other organs. The common, or simultaneous excitement, produced by both kinds of stimulants, is more efficacious for exciting vital activity. The

\* Memoirs of the Medical Society of London, Vol. IV. 1795.

The efficacy of mental stimulants, in many cases, is well known; such, for example, as exhilarating mental impressions. If the physician is able, at the same time, to strengthen the feeble body, life will be better maintained, and health sooner restored. On the other hand, the action of medicines is promoted by mental exhilaration, and the activity of the vital principle is excited; excretion and secretion, which were before carried on in a sluggish manner, become more lively; assimilation and nutrition acquire more activity; and the whole object of the cure, to produce changes in the interior of the organization, by external stimulants, is obtained.

§ 396.

Stimulants may be divided into different classes, according to their mode of action; but we must never forget that this mode of action, in regard to susceptibility of irritation, is relative. We shall first mention, gentle, violent, and extremely violent stimulants.

I. WEAK STIMULANTS.

In the application of these various points are to be considered.

(a) THE STATE OF THE VITAL PRINCIPLE. If the sum of the vital principle is exceedingly small, weak stimulants only must be applied, lest the vital principle should be exhausted; for example, in great old age. If the activity of the vital principle is easy to be excited, too strong stimulants will produce an excess of activity, as is the case in new-born children. In the transition of confined activity of the vital principle to free efficacy, weak stimulants only must be employed.

employed. Is the vital principle immoderately active in individual organs, too strong stimulants must be avoided, that this activity may not be increased. Greater vital activity in individual organs must also be attended to; as for example, in the brain. Hence the prejudicial effects of strong stimulating things, such as the spirit of ammonia, hellebore, &c. The organs of smell can bear no strong stimulants; they are immediately transferred to the brain. Now if the activity of the vital principle is exalted in an unnatural degree, which produces a great determination of the juices to the head, strong stimulants must be extremely injurious.

(*b*) THE STATE OF THE ORGANIZATION. When the organs have been injured, weaker excitement must be employed, though, in other respects, stimulants may be necessary for maintaining life. This observation is of great importance in regard to curing the phthisis pneumonia at the period of suppuration, where, though gentle stimulants may be necessary to maintain the activity of the lungs, by which expectoration is promoted, strong stimulants, on the other hand, would bring the ulcers to burst, with the danger of suffocation. This observation is of importance likewise in curing the angina; also in treating the drop-sy, in regard to the use of drastic purgatives, or diuretic medicines.

## 2. STRONG STIMULANTS.

The application of these depends, in general, on the before-mentioned points: the state of the vital principle, and of the organization. They are to be employed in the following manner:

(*a*) AFTER THE PREVIOUS USE OF WEAKER STIMULANTS,

MULANTS, by which susceptibility of irritation has, in a certain degree, been called forth, so that stronger excitement is now necessary to render life completely active. There are cases where this method must absolutely be followed; and where, by the sudden application of strong stimulants, irritability would be destroyed. Stimulants, therefore, must be applied in such a manner as to be gradually increased (§ 387.)

(b) THE IMMEDIATE APPLICATION OF A VIOLENT STIMULANT, to put the confined vital principle into activity at once. This is requisite in various cases, where, by too long delay, and making many experiments with weaker stimulants, the favourable moment would be lost. Thus in a higher degree of confined efficacy of the vital principle; of insensibility for the common stimulants, and of weakness of re-action, without the speedy excitement of that activity requisite for life, life will soon be at an end. The longer the complete action of the vital principle on the organization is impeded, the more the vital susceptibility of the organization is lost; the more its faculty of being acted upon by stimulants decreases, and the longer this state continues, the stronger stimulants will be required to remove the impediments to the free activity of the vital principle. Of this we have an instance in apparent death.

(c) STIMULANTS OF THE MOST VIOLENT KIND.

The utility of these is evident from what has been already said. They can appear cruel only to those who are not acquainted with the state of vital activity, confined in the utmost degree, when it is absolutely necessary by the application of violent stimu-

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lants to the exterior organs, to effect a uniform distribution of the vital principle. The pain which the application of them may occasion is beneficial.

## § 397.

In regard to the consequences, we observe sometimes a speedier, and sometimes a slower effect; the cause of which lies partly in the nature of the stimulants, and partly in the state of the organization.

The animated organization is more or less susceptible of irritation; is more or less affected by the influence of the vital principle. This modification is so changed, that stimulants are more perceived at one time than at another; have a greater or less action on the vital principle. This difference of susceptibility is remarked, in a very striking manner, in diseases. Stimulants therefore have at one time a speedy action, and at another a slow. Sometimes the stimulants are perceived, but re-action is impeded. The effect does not follow till re-action is gradually rendered free.

But there are stimulants also which, on account of their peculiar nature and strength, produce very speedy effects; such as æther, musk, camphor, the application of cold and heat as stimulants. Such stimulants must be employed with great caution, that the vital principle may not be exhausted at once.

Other stimulants have a much slower, but a continued effect; the changes which they produce in the organization cannot be observed till after a certain period. Among these are cinchona, bitter substances, and in general tonic medicines.

Some means operate as stimulants by the suddenness

ness of their application, as they instantly produce a state contrary to that which previously existed. Thus many debilitating things act as stimulants; for example, the sudden application of cold.

Other stimulants have a longer continued effect; they are of a weaker degree. To this class belong stimulating, strengthening things; cinchona, different kinds of food, and particularly vegetable diet. We employ these after irritability has been called forth by volatile stimulants.

## II. CORROBORANTS.

### § 398.

We shall here add a few observations respecting the use of corroborants. Nothing is more common than to say, that feeble life must be strengthened. But people, without determining where actual debility exists, and whether and how far the strengthening method is applicable, are misled by mistaking the Brunonian system; extend the idea of asthenia too far, and employ the strengthening method too unconditionally. It is necessary, therefore, to examine the injury which arises from an improper use of corroborants.

### § 399.

1. The hurt occasioned by the unconditional use of strengthening means in sthenic diseases, by which irritability, a disposition to inflammation is called forth and promoted.

2. The hurt occasioned by strengthening means, when employed unconditionally, in cases of indirect feebleness.

3. The strengthening method is prejudicial also in direct asthenia, as the dormant morbid predispositions, which might otherwise have long lain concealed in the body, are thereby called forth. By this new morbid stimulus the danger is increased, and feeble life oppressed. I here allude to the unconditional use of the stimulating strengthening method. Melancholy instances of this are exhibited by the perverted method of cure employed in the gout and hypochondriasis.

## § 400.

There is a great difference in the application of the strengthening method in the case when the full sum of the vital principle is present, and its efficacy is free; and in that when it is deficient, or when the activity is too violent or irregular. In the diseased state, some things become stimulants which in the sound state are not so; and, on the other hand, persons labouring under disease are affected by powers which exercise no considerable action on those who enjoy good health. This is the consequence of susceptibility of irritation, and irritation being in the diseased state exalted sometimes above the natural state, and sometimes depressed below it. This makes a change necessary according to the state, whether sound or diseased.

## § 401.

But, in general, the strengthening method can be employed only with certainty when the causes of the existing feebleness have been previously removed. In any other case it is either useless, or takes a prejudicial



cial direction. When, for example, the gastric impurities have not been evacuated, and attempts are made to suppress fever immediately by cinchona, this object is either not accomplished, or there arise serious tumours, and other consequences of checked fever. I allude here to cases where these debilitating means, evacuants, can be endured. The method, therefore, before spoken of §. 363. § 374. has an entirely different object. Besides, to remove the causes of debility, evacuants are not always necessary: a change of regimen only and stimulants are often employed to exalt the depressed activity of life; often digestives and the like. I must here observe, that no unconditional application of the purgative method is to be recommended.

§ 402.

The meaning of the term corroborants must be defined a little more accurately. There are DIRECT as well as INDIRECT corroborants. To the first class belong those things by which the impediments to the free action of the vital power are removed; to the second, those by which the feeble vital principle is roused and properly strengthened. Both these corroborants have often been confounded, which has given rise to many practical errors. It is a very important observation, and here in place, that in the state of real debility, where, in general, there is a deficiency of the vital principle, this principle may be exceedingly active in some of the organs, while it exercises only a very feeble action in the rest. (§ 94.) Thus the most violent delirium takes place in extreme debility, on account of the immoderate activity in the organ of the

soul. Debilitating means, therefore, that is, means which have been topically applied to lessen the immoderate irritability, may, in regard to their consequences, be considered as real corroborants; such as cold fomentations in phrenitis, though they properly have a debilitating action. Hence, there arise many dangerous deceptions, by which sthenia and asthenia are confounded, and also false conclusions respecting disease.

## § 403.

Real corroborants ought neither to weaken the power of action, as irritability would thereby be depressed; nor to increase irritability, as the power of action would thereby be lessened. Cold, therefore, cannot be a corroborant, nor yet heat, which lessens irritability as well as the power of action.

## § 404.

The great benefit of strengthening means is shewn by the following effects:

1. EXALTING THE ACTIVITY OF THE VITAL PRINCIPLE.
2. BY PRESENTING MATTER FOR THE REPARATION OF LOST ORGANIC PARTS.

## § 405.

This exaltation of the vital principle, or of irritability, may be carried to a mean degree, ABOVE OR BELOW which it occasions indisposition and disease.

Heat, light, and all stimulants, come under the first head: they exalt the vital principle, and thereby strengthen;

strengthen ; as the confined functions of the body are again rendered free.

§ 406.

The second class are modified through different degrees, according to the different kinds of substances, and have an immediate action on the organization. To this class belong all nourishing substances, and what is properly called food. These substances may be communicated to the body different ways ; as not only the proper organs of nourishment, but the whole surface of the body is capable of receiving them ; and all those substances which by means of their nature, assimilation, and animalization, are converted into organic parts, deserve to be called nourishing substances. In this manner the atmosphere itself contains nourishing matter for our bodies. But we consider them here as corroborants.

These nourishing matters acquire more the character of corroborants, according as they contain a moderately stimulating quality ; that is, a proper combination of the two classes of corroborants, gives to substances this property in perfection. They not only supply matter for the reparation of lost organic parts, but they stimulate ; that is, they make the vital principle fit to co-operate towards a proper reception of it : they promote, at the same time, the necessary assimilation and animalization. They must, however, not possess too much of the stimulating quality, otherwise they would increase in too great a degree this activity of the vital principle or excitability ; the consequence of which would be imperfect assimilation and animalization ; so that the nutritive parts which

are peculiarly destined to become component parts of the organization, would be neither completely separated nor perfectly animalized, and would afford bad nourishment, rather of a debilitating nature.

## § 407.

The necessity of using nourishment more or less stimulating depends on the existing state of excitability, whether weaker or stronger, in consequence of habit or of other circumstances. Many people, therefore, to be sufficiently nourished, have need of food exceedingly stimulating: others acquire strength by very light, thin food. To be convinced of this, we may compare the various kinds of food used in different climates; also the need which epicures have of spices and spirituous liquors.

## § 408.

As an illustration of the preceding observations, it may be remarked, that the most nutritive and strengthening food consists of a proper combination of animal and vegetable substances. Mere vegetable food rather debilitates; because it contains a less quantity of stimulating matter, or rather because in vegetables this stimulating matter is not animalized; that is to say, is not so intimately mixed with the other component parts, and so fitted for the operation of the animal organs of digestion, as is the case in animal substances. Mere animal food, however, is too stimulating; exalts excitability in too great a degree, and therefore is rendered more nutritive by the addition of milder vegetable food.

## § 409.

From the before-mentioned properties of corroborants, we may discover the difference between strengthening medicines and nourishment. Medicines operate for this purpose, in particular, by their stimulating qualities mixed with nutritive particles. This kind of mixture of their component parts, determines their fitness in regard to the state of the patients. Where the activity of the vital principle is weak, we must make more use of stimulating corroborants; those volatile stimulants, wine, musk, æther, &c. in order to exalt excitability. But if the vital principle is not much weakened, and if irritability exists in a sufficient degree, while the power of action suffers, nutritive corroborants ought to be employed: cinchona, nourishing food, &c\*. These two cases, however, ought not to be too much separated, and we must not forget to fulfil both indications, properly, in order that, while we animate depressed excitability or irritability, we may be able, at the same time, to strengthen the power of action.

## § 410.

The degree of the strengthening method to be applied must be determined from observation of the existing degree of asthenia. We must recur to the beforementioned difference between direct and indirect feebleness, or the case where the vital principle is

\* The celebrated Frank, in treating of continued gastric fever, gives some observations which deserve to be read, and which may serve to illustrate what has been here said. *De curandis hominum morbis.* Lib. I. 176.

is actually deficient, and that where it is merely suppressed.

#### § 411.

In the first case we must make choice of such corroborants as are endowed with a less stimulating property, but at the same time well prepared, and in particular animalized nourishment. A good deal will depend on the quantity in which they are applied. In a too great relative quantity, nourishment in the state of asthenia is prejudicial, partly by its volume, which is too great to be taken up and prepared by the organs of digestion, and partly by the greater irritation which such a large quantity of food naturally excites, and which is increased by the volume. This observation may be applied to the nourishment of man in the first years of life, as well as in old age. Both these asthenic states require finer and well prepared nourishment, which the more it is animalized becomes the fitter for use; the more strengthening, digestible, and nutritive. Milk drawn immediately from the breast has these properties in the most perfect degree. The last period of human life is a return to childhood. Agreeably to this hint, furnished by nature, in extreme old age we should recur to the nourishment of childhood, combined with tender, nutritive, animal food, lean soups, jellies, &c. Thus milk sucked immediately from the breast, would, without doubt, be an excellent means for prolonging feeble life in old age.

#### § 412.

In indirect debility, where the activity of the vital principles

principle is merely suppressed, corroborants which possess more of a stimulating property may be employed, because less injury is here to be apprehended from the consuming power of the stimulant; for example, animal food in its full extent, also cinchona with wine, and other exhilarating things.

The strengthening method requires the greatest caution, not only in the choice of the corroborants, but also in their application; and the consequences must always be observed with the utmost care. This observation will tend to enlarge our deficient knowledge respecting the relation between the healing means and disease, and to lead to a more rational process. It is not possible to give definitive rules for individual cases: practical sagacity, experience, and general knowledge, must be called in to our aid, where the strict application of theory to practice cannot be admitted; for feeble life would be extinguished before the physician, who adheres too closely to all the subtleties of theory, could conclude his researches.

§ 413.

The application of corroborants is partly **GENERAL**, and partly **LOCAL**, according to the nature of the existing disease. The general strengthening method is applied indeed in every case of debility, in order to exalt the vital principle, and to repair the loss of organic parts; but we employ it locally, when we observe any particular debility in individual organs. Sometimes one organ suffers more than another by debility, or is almost exclusively affected; as for example, the lungs, the stomach, the organ of the soul. In that case we must endeavour to strengthen the enfeebled

feebled organ by local means; but in regard to these topical means, we must entertain no idea of specifics, but only of means, which, by their internal properties, are calculated to have an exclusive action on a certain organ. This, however, will depend on the local application. Thus lame parts are strengthened by bathing, and by fomentations topically employed; thus inhaling vital air strengthens the lungs, and thus the organ of the soul is strengthened by exhilarating ideas. The local application of corroborants has naturally an influence in strengthening the whole body in general; but it is most efficacious in regard to that organ to which it is principally directed.

## § 414.

By strengthening the principal organs, we strengthen, at the same time, the other vital organs. What beneficial influence is produced, therefore, on the whole nature of man, in regard to the duration and maintenance of life, by strengthening the stomach and the lungs!

## § 415.

Under the term STRENGTHENING we must not comprehend merely continual excitement, and the influx of a large quantity of nutritive matter, but the general attention and care of the physician to maintain an equilibrium of the powers; sometimes to remove the causes of immoderate irritability, and sometimes the impediments which occasion too weak vital activity; direct or indirect strengthening means must therefore be employed, according to the nature of the state.

## § 416.



## § 416.

During the use of strengthening means we must, at the same time, avoid all those causes which maintain and increase debility; as for example, insalubrious air, warm apartments, warm beds, &c.

## § 417.

In the strengthening regimen, we must pay particular attention to every thing that comes in contact with the surface of the body, as the importance of the organ of the skin has been already explained. Hence care must be taken to promote cleanliness in general, by bathing, &c. and by paying proper attention to the skin.

## CHAPTER III.

ON THE MEANS FOR LESSENING IMMODERATE  
IRRITABILITY.

## § 418.

**T**HERE are certain states in which irritability is unnaturally exalted, and the activity of the vital principle so excessively disproportioned to the nature of the organization, that there is reason to apprehend that the vital principle will be exhausted, and the organization rendered unfit for life. This unnaturally exalted irritability is either general or relates to individual organs in particular. We shall here consider it in the **ASTHENIC STATE**, which **BROWN** calls indirect debility; but in treating it we must never lose sight of the existing vital debility.

## § 419.

We must endeavour to change this unnatural state by external application. The means to be employed for this purpose may, in a certain sense, be called **DEBILITATING MEANS**; as they free the body from the pernicious effect of a power which exercises on it an unnatural action, or rather confine the action of this power, without weakening the power itself. In this case they shew themselves as indirect debilitating means.

## § 420.

§ 420.

To effect this we must first endeavour to remove the causes which maintain or increase the immoderate irritability. These are :

1. INTERNAL STIMULANTS, an excess of juices; accumulation of the juices in individual parts; impurities of the *primæ viæ*; any kind of foreign matter in the body.

2. EXTERNAL STIMULANTS, great heat and cold; stimulating food, spirituous liquors, mechanical lesion of the body, &c.

§ 421.

These causes are removed either IMMEDIATELY or BY DEGREES. When they threaten a speedy extinction of life, they must be removed instantaneously; thus we draw drowned persons from the water, and remove from mephitic air those who have been suffocated. Sometimes, however, these causes are removed only gradually, because by a sudden change of the external stimulants, there might be danger of destroying life at once, or at least of rendering the state of the patient worse. Thus, to persons frozen to death heat must be applied by degrees, and drunkards must be weaned from their habit by gradually lessening their quantity of spirituous liquor. (§ 475.)

§ 422.

In this mode of treatment we are guided by observation of the state of the organization, and of the vital principle; the greater or less manifestation of the activity of the vital principle; the solidity or relaxation

tion of the organic parts; the external constitution of the body, temperature, &c. Thus external exciting means are applied, in proportion as the natural internal heat is called forth. This effect we immediately endeavour to promote by friction, animating means, &c.

To remove the external causes, forms the first and principal part of the anti-asthenic mode of cure, and will accomplish the end in all cases, except those where the vital principle is so depressed that it must be excited by stimulating corroborants.

#### § 423.

In the direct asthenic state, we cannot depend on those means alone which remove impediments; on the contrary, when employed too long, or to a certain degree, there is some danger of their increasing the debility, and making the disease terminate unfortunately; so that the patient will die in consequence of exhaustion, before the strengthening method is begun; or the debility will be so much increased, that the application of strengthening means will be insufficient. By a gastric cure in nervous fever, carried to excess, or improperly applied, even when the patient, on account of a good bodily constitution, has withstood the most violent attacks of the disease, such a direct asthenia, combined with the greatest irritability or excitability, will be occasioned, that the convalescent will scarcely be able to endure the common stimulants, and the necessary strengthening nourishment, and will attain very slowly to health, or will die through debility and unsusceptibility of the necessary restorative regimen. It may readily be perceived that I

here allude to an abuse of the so called gastric and antiphlogistic methods.

§ 424.

On the other hand, neglect of the principal indication, to remove the causes of asthenia, is highly pernicious. The evil is still nourished, and new matter is collected to maintain and increase the disease; when, for example, notwithstanding the application of proper medicines, an improper conduct is pursued.

Sometimes the impediments cannot be removed directly; and, in that case, we must, at least, endeavour to accomplish our object indirectly.

§ 425.

Too great irritability, notwithstanding the existence of the asthenic state, may be lessened, in a certain degree, by the application of debilitating means. Sometimes the prolongation of life depends upon this method, when employed with caution. The external stimulants must be depressed below the usual degree. Under this head may be classed the temporary application of cold, light vegetable diet, moderate evacuates. But such means must neither be continued too long, nor applied in a high degree. For a certain period, they may be attended with the happiest effects; may produce a more uniform diffusion of the vital principle; by alternation may excite more elasticity of the solids, and remove irregularity in the natural functions; but if too long used they exercise their debilitating power. In this application the immediate observation of the physician is necessary, to point out

these pernicious consequences, and to prevent them in proper time.

Every thing depends on the degree of asthenia. There must always be sufficient strength to support the agitation which this method occasions; and there must even be such a stock of powers as to admit of something being taken from them without danger. In a high degree of asthenia, the so called debilitating means cannot be applied, as the vital principle would thereby be speedily exhausted. Thus I have often seen death hastened by bleeding: this may be illustrated by the treatment of real nervous fever.

The degree in which these debilitating, irritation-lesening means can be employed must also be considered. The choice of these means is of great importance. In asthenic diseases emetics are preferred to purgatives, because it has always been observed that the former debilitate less than the latter. In asthenic inflammations bleeding must be sparingly employed, and among the gentle detergents those are chosen which produce the least relaxation in the tone of the bowels; for example, rhubarb: strong evacuants ought, in general, to be avoided.

But this temporary moderate debilitating method is not to be entirely rejected, even in asthenic diseases. It is the most efficacious for conveying off and lessening the unnatural irritability, and it is a very unfortunate misconception of the Brunonian system, to omit bleeding and evacuants entirely in asthenia. The doctrine of those excellent physicians, a FRANK and a VOGEL, is entirely different. By these we are taught that all the excretory and evacuating ducts must

must be preserved free and open \*; and that by emetics, employed in proper time, we must expel slimy accumulations, and thus, by removing the impediments at once, open the way through which we are enabled to convey into the body corroborants, which will then produce, with more certainty, the wished-for effect. We know by experience the melancholy consequences of an opposite method, when people hope to remove the disease by stimulating and strengthening means alone. Let us here only reflect on the bungled cure of intermittent fever.

§ 426.

In applying the stimulating strengthening method, and the so called debilitating means, for expelling and carrying off accumulated crudities, a distinction must be made between the COMMENCEMENT and the PROGRESS of disease. When a disease is commencing, it often may be cured merely by stimulating means; means which excite the vital principle to such activity, that the commencing derangement is removed. Thus the consequences of fear may be immediately prevented by spirituous exhilarating things, such as wine, if taken soon after the pernicious impression; and in the like manner the breaking out of an infectious disease, in its very commencement, on the first sensation of debility, lassitude, shivering, and feverish affections, may be checked by cinchona or camphor, wine, æther, &c.

In this first period of disease, the main object is to set free the oppressed activity of the vital principle,  
and

\* In treating malignant diseases, that excellent precept *sestina lente* cannot be too much recommended to physicians.

and to effect again an uniform distribution of it, which can be done only by stimulating, strengthening things. In this precious moment it is yet possible to avert the mortal disease; but unfortunately it is only a moment, and a little farther this method of cure, in other respects so certain, will be too late.

On the other hand, in the first period, debilitating means, that is, evacuants, bleeding, &c. must be prejudicial; must promote and increase the disease, open the passages for infection, as they entirely depress the still remaining activity of the vital principle, and increase unnatural irritability by exhausting the power of action, and injuring the organization itself. Hence it appears what mischief must arise from the unconditional use of emetics and bleeding, so much employed by the empirics. The vital activity, necessary for removing the disease, is weakened; the organic parts are so far injured, that they are deprived of a great part of their susceptibility for the vital principle, and their substance even is mechanically deranged, if, as usual, these means are employed in strong doses, which will then make them act as poisons. These, however, are cases where the activity of the vital principle is weakened by the influence of certain powers, which immediately attack that principle, and of which the consequence is lesion of the organization; for example, mental stimulants, violent fear, infectious poison. Lesion of the organization manifests itself either sooner or later; and this difference must be attended to in the application of the stimulants.

Of a different kind are those cases where the organization is injured, and where the most visible and most pernicious changes are produced in it; as for example,



ample, by poisons. In such cases we must, above all things, remove those foreign matters which destroy the organic parts; and where this is not possible, we must at least lessen their pernicious effects. This may be accomplished, in cases of poison, by emetics speedily administered, and mucilaginous, oily liquids. At the same time, care must be taken to maintain the vital principle, in order that its activity may be supported in such a degree as may be sufficient for restoring the deranged equilibrium of the organism.

The physician must consider in a quite different manner the SECOND PERIOD \* of disease, when some injury in the organic parts manifests itself; when crudities are collected in the stomach, or foreign matters, which by their pernicious stimulating quality attack the organic parts. This accumulation of noxious matter is the consequence of deficient energy of the vital principle; of insufficient activity in the business of excretion and secretion. In this case it is particularly necessary to remove the foreign matter, which nourishes the disease, and prevents the free action of the vital principle on the organization.

In removing these pernicious stimulants we must attend to the degree of asthenia, and consequently to the efficacy of the vital principle; otherwise the body may be still more weakened by incessant evacuation; the activity of the vital principle may be too much lessened,

\* I must request the reader not to forget the division of the usual progress of some diseases of direct asthenia, on which the above observations are founded. 1. Beginning or commencement of the disease. 2. Formation of the disease. 3. Progress of the disease. In the last case, a state of direct asthenia takes place, which alters the method.

lessened, and the business of secretion and excretion be thereby more and more deranged, so that these foreign matters may be more accumulated in the stomach; and, on the other hand, life still decrease, till the soul at length is as it were expelled from the body by purging and bleeding.

But when there exists actual organic lesion, we cannot obtain our end if we endeavour to restore the deranged equilibrium merely by stimulants and exciting vital activity. Either the activity of the vital principle will be exalted in an immoderate and unnatural degree, and indirect debility be thereby effected, or the vital principle itself will be exhausted before it can overcome the impediments which oppose its activity in the organs. The most dreadful spasms, phrenitis, dropsy, metastases to the noblest parts, are the consequences of this method. This is pouring oil into the fire.

There are, however, states of the highest asthenia, where we must not think of removing foreign matters which produce organic lesion of the parts, but where our whole care must be to guard against exhaustion of the vital principle; yet even in this state we must endeavour to keep the excretory and secretory ducts open, in order that nature may be impeded as little as possible in removing these matters. The tepid bath, in malignant nervous fevers, is exceedingly proper for this purpose.

This method must be followed in slow tedious diseases, where the vital principle is much weakened, and where no proper evacuants can be employed.

§ 427.

In order to accomplish both objects, to maintain vital activity, and remove organic lesion, the two methods must be combined, but great caution will be necessary, that we may not fall into a pernicious contradiction in practice ; that is to say, that we may not again corrupt by debilitating, what we have improved by strengthening means. We must also not employ means of one kind in such a degree, as to counteract the effect of another kind. But there are many diseased states, in which the physician is at a loss what indication to follow. An inflammatory predisposition may exist where there is great weakness of the vital principle. In such cases the greatest physicians have combined strengthening means with those that prevent inflammation ; bleeding must not be employed, and cooling drinks must be used. Pain, spasms, gangrene in the membranaceous parts, may be cured by opium combined with peruvian bark or alcohol, provided there be no violent fever\*. For the same purpose opium is combined with wine.

It is of great importance to change the strengthening means for gentle evacuants, and when the latter are employed to use a more nourishing diet. In malignant nervous fevers, with a gastric and phlogistic predisposition, I have given in the forenoon, during the intervals, gentle resolvents, and in the afternoon cinchona, or, according to circumstances, mineral acid. I am well aware that theoretic physicians will censure this method ; and indeed I would not recommend it in a high degree of direct asthenia. Practical observation, however, is in its favour. There

\* Frank *de Curand hom. morb.* I. 26.

are some periods when this alternate process is the only thing that can save the patient's life; on the other hand, in such cases, the stimulating strengthening method applied unconditionally, without regard to remote causes, would occasion all those evils before mentioned. How then can those means which promote the last object be called actually debilitating? are they not much rather indirect strengthening means? (§ 209).

## § 428.

In the use of these so called debilitating means, we must take as much care as possible that none of the principal vital organs be too much weakened, by which the organization would suffer in general. Strong evacuants, therefore, in asthenic diseases, besides the general injury which they occasion to the whole constitution, are exceedingly pernicious, because they injure the bowels mechanically. The same injury arises from an abuse of injections, by which the vital susceptibility of organic parts will be destroyed.

If any disease belongs to the asthenic class, it is the puerperal fever; and if we read what Vogel, Stoll, and Burserius have said on the mode of treating this fever, we shall see the injury which arises, according to all experience, from omitting the evacuants indicated; but in this respect great attention must be paid to the powers: *Quo major contagii viriumque successu morbi prostraturum est ratio, eo magis timeatur oportet ne incauto purgantium usu, quod reliquum est vitæ evacuationibus expellatur*, says Frank.

## § 429.

We have here before us immoderate irritability,  
and

and to lessen it we employ STRONGER STIMULANTS (§ 317). which when applied in a preponderating degree become real sedatives. On this depends the application of opium in spasmodic affections; for though opium is a stimulant, it acts against the existing irritability in a proportional degree as a sedative. Other stimulants, raised to doses equally strong, produce the same effect: thus wine, in an immoderate quantity, acts as a narcotic, and weak stimulants applied in the like manner, in greater quantity, will have the same effect. People may get drunk even with beer. Opium, therefore, as well as other things of the same kind, in small doses, increase irritability, but in greater they overcome and suppress it, and in still greater they destroy it entirely. Every thing depends on the practical acuteness of the physician, by which he is enabled to ascertain the existing quantity of the vital principle, and the state of the organization. To this head belongs the treatment of real nervous fever. This great irritability shews itself by an exceedingly weak, almost imperceptible pulse, raving, drowsiness, coldness of the extremities, &c. The strongest wine, opium in large doses, and musk, are in this case the means of cure.

In employing these means, care must be taken to distinguish inflammatory predisposition from irritability, as shall be mentioned hereafter, else with these stimulating sedative means we should occasion the greatest mischief.

We must distinguish also the effect of stimulants, which of themselves, and in small doses, exert a sedative action, from those which when used immediately in considerable portions, have a stupifying effect,

as

as spirituous liquors. Opium possesses of itself so high a stimulating property, that even in proportionally small doses it suppresses irritability by its counter-excitement. It may be employed, therefore, with much more certainty than these spirituous means.

In using this method we must not forget the STATE OF THE ORGANIZATION, and attend merely to the vital principle. The application of it is dangerous, when any injury or inflammation exists in organic parts. By inattention to this caution we should increase the injury; at length annihilate these parts, and make them unfit for being acted upon by the vital principle.

Long before BROWN opium was employed for lessening irritability. FOURNIER used it, with great benefit, in hectic fevers, and it is recommended by VOGEL.\* BROWN, by his *opium me hercle non sedat!* has given us another explanation of its mode of action, which however his servile imitator carries too far.

#### § 430.

Some have proceeded so far as to imagine that they can accomplish their object by suppressing irritability in all cases, by means of counter-stimulants, whether lesion of organic parts, inflammation, accumulation of gastric impurities exist or not; and that these stimulating narcotic means may be substituted with advantage for the antigastric and antiphlogistic. They are employed, therefore, unconditionally in all cases, and fevers are checked, and poisons suppressed, &c. without any regard to the consequences. These people certainly place great confidence in the power of

\* Handbuck II. p. 187. &c. also Frank *de Cur. hom. morb.* II. 71.  
nature!

nature ! In how extraordinary a manner this new method is said to act, will appear from the following case, of which the Brunonians are proud. It is indeed very remarkable, but not in regard to that on account of which it is produced.

A woman, sixty-two years of age, having ate poisonous mushrooms, experienced all the effects of a narcotic poison : insensibility and apoplexy, cold of the extremities, &c. About forty grains of emetic wine had been administered, but as this produced very little effect, she took spirit of ammonia in water, and threw up once without any relief. At last, a mixture of half an ounce of *laudanum liquidum*, with six ounces of peppermint water, being given to her in the quantity of a large tea spoonful every quarter of an hour, an abundant discharge was the consequence ; the stupefaction decreased, and she was soon perfectly cured\*

It may be here readily seen that it was not the opium alone which performed the wonder ; it only lessened the immoderate irritability, which opposed the effect of the emetic ; yet the application of the emetic was necessary to expel the poison. The use of opium, in this case, deserves full approbation. Let the reader compare this with the similar application of it in the like cases ; as for example, lethargy. Hahneman long ago recommended strong coffee, as the best antidote against narcotic vegetable poisons. But this observation by no means sets aside the necessity of expelling the poison by evacuants ; both indications must be combined. The application of opiates and medicines which have a like action, removes only fit-

\* Erklärung der Brownischen Arzneilehre von Joseph Frank. Heilbron, 1797.

ness for receiving the poison, and lessens the activity of the absorbing vessels, but as long as the poison remains in the body, they can act only for a certain period; and we employ that time to free the body from the poison, and then recur to emetics, &c.

## § 431.

Excess of irritability may be lessened with great certainty by the use of emollients and lenitives. This method is particularly proper when the organic parts have suffered, in order that the violent excitement which arises by the organic lesion may be weakened. The application of them is attended with the more certainty as they do not, like evacuants, immediately exhaust the power of action in the organization, but rather strengthen and maintain it. On the other hand, they have great advantage over the stimulating, stupefying medicines, which, by continued application, weaken the power of action, and impede the necessary evacuation of foreign matters. In the case of direct asthenia, they must be combined with the so-called narcotics or cinchona, &c. according to circumstances; sometimes they will serve also to these stimulating means as vehicles.

We must, however, carefully distinguish fat, glutinous, obstructive things; for example, fat soups, farinaceous food, from those which are merely softening and emollient, among which are mucilages. The method of curing *diarrhœa*, will serve as the best illustration of this remark. If it be only commencing and mere looseness, opiates and spirituous means are sufficient; if it be gastric, moderate evacuation, and particularly emetics, which speedily carry off the cru-

dities,



dities, will be of great service; only these medicines must have no acrid stimulating qualities, by which the organic parts would be injured. In the last place, if lesion of the organic parts or inflammation already exist, medicines which counteract inflammation must be employed; if lesion exists in a higher degree, lenitives are required, which may be seconded by combining them with opiates. In these few words are comprehended all the different kinds of flux, and the proper methods of cure. Those who keep in view these observations, will be able to reconcile the many contradictions of the physicians respecting this disease, and also to understand the true mode of treating the malady.

The emollients may, with great propriety, be added to aperients and cathartics; the former moderate the stimulating quality of the latter, without counteracting them, and rather promote the necessary evacuation of pernicious matter; they lessen irritability, and check immoderate evacuation. Lenitives do not obstruct, but carry off in a gentler manner.

Another kind of emollients are used in cases where there are tension of the fibres, indurations and obstructions; as for example, vapour baths, the warm bath, tepid liquors. These emollients deserve to be more particularly considered hereafter.

§ 432.

The INFLAMMATORY PREDISPOSITION must not be overlooked. It takes place in the highest asthenia, and is the consequence of lesion produced in the organic parts by irritation. By organic parts, we here understand the animated organization. Stimulants,  
whether

whether they act outwardly or internally, occasion such changes in the organic parts, derangement of their admixture and cohesion, that the substance of the parts itself is attacked, and pain and redness ensue. A higher degree of this lesion is suppuration and gangrene, mechanical destruction of the bodily mass; whereas inflammation is merely a deviation from the natural state of the organic component parts.

To remove the inflammation, we must employ the antiphlogistic method, the application of which, however, requires an accurate knowledge of the different states. Asthenia makes a counter-indication against the use of anti-inflammatory means; but does not reject it entirely: it may be admitted, conditionally, in a high degree of feebleness. But in this case we must endeavour to combine the anti-inflammatory means with strengthening means. It is here that opiates, and other things which lessen irritability, have an artificial action. This is proved by the use of opiates in asthenic inflammation of the eyes. May we venture, therefore, from analogy, to draw a like conclusion in regard to the treatment of internal asthenic inflammation? \* Of the strengthening means, those are to be chosen which are least endowed with a stimulating property.

There are inflammations of an inferior kind, which by remedies that produce a derivation exciting greater vital activity, are removed from individual organs; but when the organic parts are injured in a high degree, the inflammation by the use of stimulants is increased.

BROWN speaks of STHENIC and ASTHENIC inflam-

\* See Frank *de Curand hom. morb.* II. 26.

mations, and recommends against the former the antiphlogistic method in its full extent, and for the latter stimulants, in order that by exciting greater activity in the system, and consequently a stronger motion of the blood, we may effect the dispersion of congestions. By the first kind he probably meant actual, violent inflammations, where the lesion of the organic parts, the solids and fluids, is already considerable; but under the latter a very inferior degree, or rather a commencing inflammation, where the organic parts have not much suffered. Perhaps he distinguished also, by the above division, those states where the inflammation must be brought to suppurate by stimulants, and that where the inflammation can still be dissipated. This we observe in a very evident manner in inflammation of external parts.

The dissipating method, or speedy lessening inflammation by means of derivation, is commonly employed in the first stage, before the inflammation begins to suppurate; but as soon as an inclination to suppuration is observed, it must be promoted by stimulants. The first mode of treatment is indeed far more certain; but it can be employed only in the commencement. The other, which we have seen adopted with the best consequences for ulcers, we should apply to the cure of internal inflammation, only it is here too difficult to ascertain the degree of the malady; it is also exceedingly difficult to determine the proportion between the inflammation, and the degree of the stimulant to be applied. Should we be able to acquire a more accurate knowledge in this respect, we should have an excellent mode of cure for the first stage of pulmonary consumption.

The

The principal point in the anti-inflammatory method is to remove all external stimulants, and every thing heating. In no disease is rest more necessary; and that alone can remove the evil, especially when combined with light food not too nutritive, but at the same time not too debilitating. What are called medicines, in the strict sense of the word, must be employed with great caution, not to increase the excitement.

The distinction between GENERAL and LOCAL inflammation, is of great importance. Under the former, we understand, a general inflammatory diathesis, (*diathesis phlogistica*) a general change in the relation of the organic parts, combined with general irritability. By local inflammation, we mean derangement of individual organs, effected in the like manner. Each of these two kinds of inflammation requires a different mode of treatment; the first general, anti-inflammatory means, bleeding; the second, topical means, applied immediately to the suffering part.

### § 433.

Excessive irritability may exist also in individual organs, and requires therefore local treatment; for example, inflammation in the bowels, inflammation of the brain, squinancy, inflammation of the stomach. These local inflammations, however, are only the consequences of immoderate irritability in individual organs. This immoderate irritability in individual organs may exist with lesion of the organs, as in spasmodic affections. But, in general, local must be combined with general treatment. In common we succeed better in removing local evils of this kind,  
than

than in removing those which are general, especially when they affect organs which have little connection with the rest.

§ 434.

The local application of means for lessening irritability, deserves our particular attention. By increasing or lessening the irritability of individual organs, we produce a more uniform distribution of the vital principle, the best means for lessening its immoderate activity. Thus we cure inflammation of internal parts, by stimulants applied to the external; for example, vesicatories applied to the breast in inflammation of the stomach, and also applied externally in inflammation of the throat. Thus we draw off inflammation of the brain by vesicatories applied to the soles of the feet. But by lessening the irritability in other organs, corresponding to the affected organ, we lessen the irritability in the latter. Local bleeding, vapour baths, fomentations, act in this manner; but to produce a local increase of irritability, vesicatories, electricity, friction with some volatile spirit, &c.

§ 435.

The means for lessening immoderate irritability must be employed only in that degree which is sufficient for carrying off the excess. If too long continued they produce relaxation, softness, and debility; injure the organization, and lessen the vital activity, by which the functions of the body are confined, and obstructions, congestions, and accumulations of the juices in individual parts, hebetude of sensation, and

cachexies are occasioned. Individual organs also in the local application of this method are injured in the like manner. Thus relaxation of the bowels, and inactivity of their functions, are produced by warm liquors, or the improper use of purgatives.

## CHAPTER IV.

### ON SOME OF THE MEANS TO BE EMPLOYED FOR MAINTAINING FEEBLE LIFE.

#### § 436.

EVERY thing that favours the prolongation of life serves to maintain it in the asthenic state, but only in regard to asthenia. To exalt the efficacy of the vital principle, or lessen it to a certain degree; to maintain it in this state, and to guard against consumption of the animated organization, are the principal indications in the use of the means for maintaining feeble life, a few of which we shall here consider.

#### HEAT.

#### § 437.

Heat, according to BROWN, is the mean point of external temperature, between cold and burning heat (*ardor*.) Consequently cold and heat are only the two extreme degrees of heat.

The strengthening power of warmth has already been shewn in the course of this work; it preserves a mean moderate degree of irritation, whereas cold and heat debilitate. (§ 35.)

Warmth is the first thing that promotes the expansion of life in its origin; it is also that which maintains its continuance; it promotes and supports the

activity of the vital principle, and prevents the decomposition and solution of the component parts of the organization: it is the immediate companion of all life, all motion and activity.

But to be sensible of the real utility of warmth, and to avoid many misconceptions, we must take into consideration the different modifications of heat, in regard to the state of the vital principle and the organization. The more active the vital principle, the more solid and the more equally mixed are the component parts of the organization, and the more lively is the internal natural warmth of the body. If the activity of the vital principle is too great, warmth exists in a greater degree even to heat. This degree proceeds still farther, when by too great activity of the vital principle the organic parts are injured, as is the case in the inflammatory predisposition. (§ 432.) Hence the febrile heat. If this organic derangement be carried still farther, the consequence is gangrene; a state in which the organic parts are hurt in such a degree that they lose their susceptibility for the vital principle, and this at last ends in mortification (*sphacelus*) the death of organic parts. In this state the influence of the vital principle is entirely withdrawn, and a chemical decomposition of the organic parts has taken place.

These phenomena, the consequences of immoderate activity of the vital principle, we observe also in individual organs. An individual organ may be feverish, inflamed, gangrened, &c. When this state of unnaturally increased warmth is a consequence of irritability generally exalted, or of immoderate activity of the vital principle in general, it is shewn by the  
exter-



external temperature of the body. This is particularly the case when the unnatural activity is communicated to the organ of the skin. Thus we observe an exclusive increased warmth in individual parts of the body; for example, in the head, in the palm of the hand. But when the organ of the skin is not affected by this unnatural activity, though it may exist in the internal organs, instead of observing increased warmth in the external parts of the body, we sometimes find benumbing cold, while the patient is tormented with internal heat, and cannot quench his thirst.

§ 438.

External warmth acts, therefore, on the body according to the degree of the activity of the vital principle, and the state of the organization. By this we may see the difference between the action of warmth on a dead and on a living body; when this activity exists in a considerable degree, the natural warmth is greater. If no unnatural state exists, an increased temperature of the body will be observed externally.

This internal activity of the vital principle is proportioned to the action of external warmth, consequently where the activity of the vital principle is freer, we find it in a higher degree, and where the vital principle is fixed, in a lower. Hence it appears what bodies can best endure the external heat of summer, or the cold of winter. According as the vital activity is exalted or depressed, so is also the internal warmth. Hence the difference of the temperature of the body in diseases, and at different periods of life. Hence the febrile heat, the greater warmth in the period of childhood, and the decreasing warmth in old persons.

If the action of the vital principle is in part removed, and if that state which we called gangrene has taken place, a commencing colliquation and decomposition of the organic component parts, there arises a highly increased external warmth, but apparently of different degrees, in opposition to the NATURAL warmth.

## § 439.

By a more delicate sensation and diligent observation we can determine, from the nature of the external temperature, the state of the internal organization. The sensation of external warmth in fevers is totally different from that of the natural state, and in inflammation from that in gangrene. Sufficient observations are still wanting to this part of semeiotic, in order that we may be enabled, by more accurately determining the external temperature of the body, to form conclusions respecting the state of the internal organization. By longer practice, to give more delicacy to our sensation, and perhaps also by proper instruments, these observations may be brought to greater perfection.

## § 440.

The application of external warmth ought to be proportioned to the temperature of the body. This is a golden rule for maintaining feeble life. It should be only a few degrees higher than the temperature of the body, and be gradually increased according as the natural warmth of the body increases. If too small a degree of external warmth be applied, it will not be sufficient to maintain the activity of the vital principle, and

and consequently to maintain and increase the internal warmth; by cold it would be lessened still more, or totally suppressed. If a higher degree of warmth than the natural temperature of the body be applied, the activity of the vital principle will be immoderately exalted, but the organic parts will by these means be deranged. Frozen limbs, if brought near the fire, mortify with a high degree of heat. This mortification soon takes place, so that the limb is totally deprived of sensation.

§ 441.

When we endeavour by external calefacients to excite the internal warmth of the body, we employ, at the same time, certain auxiliary means to effect a general diffusion of it throughout the whole organization, from the interior towards the surface. Friction serves for this purpose, and internal calefacients conveyed into the body. Both these modes of application must mutually support each other. A great deal depends on the external temperature of the body; and hence the great influence of the state of the atmosphere. The nature of the heat by which we are surrounded, and the matters with which it is combined, are of no less importance; whether the air contains more oxygen or azote, and whether the calefacients are rendered more poignant by the admixture of stimulating component parts. In the last case, they are more efficacious; as for example, burnt wine. Warm baths are strengthened by the addition of aromatic herbs.

## § 442.

When the internal warmth is exceedingly weak, a smaller degree of external warmth must be employed. In cases of frozen limbs, what we call cold is a corroborant, provided the decrease in the temperature of the external warmth of the body arises merely from the vital activity being oppressed, while the vital principle exists in sufficient quantity. But if this deficiency of natural warmth be the consequence of an actual deficiency of the vital principle, heat, particularly on account of its stimulating quality, is employed for exciting and maintaining vital activity. Old people, therefore, require a far higher degree of external warmth than that of the temperature of their body, and for this reason, they can endure heat better than young persons; care, however, must be taken to make a distinction between these two states; that where the vital principle exists in sufficient quantity, and that where it is deficient. The general rule: that the application of heat is to be proportioned to the temperature of the body, holds good when the vital principle is only confined, as in many diseases.

## § 443.

Heat has a stimulating as well as strengthening property: by the former the activity of the vital principle is excited and increased; by the latter it is maintained. If it is to be applied, in particular, as a stimulant, it must be used in a higher degree, and only for a SHORT TIME, because in this degree it would otherwise relax and soften, or even injure the organic parts.

But

But to use the strengthening property of heat, a mean degree is requisite, and continually applied.

§ 444.

The continued application of heat is indispensably necessary for maintaining feeble life, in order that the requisite activity of the vital principle may not be depressed. The greater the asthenia, the more necessary it is to maintain heat; because, if the calefacients be intermitted, there will be reason to apprehend the increase of the debility, or the total extinction of life. By heat alone we can retard these, or at any rate the total loss of irritability.

At the commencement of life, in the embryo state, continued warmth is necessary in the mother's body to make the child expand and promote its conformation. On man's first entrance into the world, continued external warmth is necessary to maintain the activity of feeble life; and the weaker this life, the greater is the degree of external warmth (not heat) which will be required, to prevent the total extinction of life. New born children, whose conformation is imperfect, must therefore be kept warmer, and hence catching cold after birth is so pernicious.

The necessity of the uninterrupted application of heat we observe also in cases of apparent death.

In the continued application of calefacients, the degree of heat must be accurately adjusted, in order that we may not occasion relaxation, softening and immoderate debility. Attention must always be paid to the nature of the organization: if the solids are relaxed, or if the organic component parts are not sufficiently connected, the calefacients, especially when employed  
in

in a strong degree, must not be too long continued ; but this will not be the case where the fibres are solid and stiff. In the first case, we must lessen the degree of the warmth, and immediately apply strengthening means to support the vital principle, and prevent the component parts from being separated ; but we must endeavour, in all cases, to assist the action of the external calefacients, by promoting the expansion of internal warmth.

### § 445.

One might easily be led into the error of supposing that heat ought not to be employed internally and externally as the means of promoting warmth, in order to maintain feeble life, because this recommendation of it is in direct contradiction to the assertion of very respectable physicians, that cold is the greatest corroborant : but it ought to be remembered that the heat is employed in a degree proportioned to the state of the organization ; that cold is only a less degree of warmth ; that warmth applied externally in this low degree conducts off the excess of the internal heat, which is the consequence of too great activity of the vital principle, and that it therefore acts as a corroborant but negatively, as this small quantity of it is in itself debilitating. Cold, on the other hand, weakens where there is a deficiency of internal heat (we must here except the sudden application of cold as a stimulant) ; and in this case a higher degree of warmth is necessary to maintain the requisite activity of the vital principle. In both cases, the deranged equilibrium is restored by the effect of warmth, either by its conducting off the  
excess

excess of heat in the body, or by conducting to it more heat when there is a deficiency,

§ 446.

We shall now speak of the means for calling forth the internal heat, and distinguish them from the calefacients, properly so called. They are, in particular, those by which the impediments to the free activity of the vital principle are removed, or by which the activity itself is excited,

It often happens, that if the impediments only are removed, the internal heat will gradually diffuse itself in an uniform manner throughout the whole body. In cases, however, where the activity of the vital principle is too much confined, where, in particular, the organs have considerably suffered, and where their fitness for being acted upon by the vital principle is greatly lessened, the application of stimulants is immediately necessary to put the activity of the vital principle in full play. This may be illustrated by the example of a higher or lower degree of apparent death\*.

Rest alone is often sufficient to call forth the internal heat, as it tends less to weaken the powers, and produces less stimulation; so that the expansive function of life is carried on with less interruption. There is more reparation than loss. Thus, during sleep, we resume our strength, and by this daily lessening of external excitement, an uniform distribution of the vital principle is again effected. Nothing, therefore, is more prejudicial to the expansion of our powers,

to

\* See the Author's *Versuch: Kunst Scheintodte zu helben.* Hannover, 1797. p. 56.

to the growth and good state of the body, than immoderate exercise and labour. Every morning we find ourselves strengthened; our pulse beats regularly; the natural warmth of the body is moderated, and at the same time diffused; whereas in the evening, the daily evening fever takes place, and the warmth of the body is more or less accumulated in individual parts. The greater the asthenia, the more rest is necessary to prevent consumption of the powers.

In applying stimulants, we must be careful not to employ them in such a degree as to destroy the necessary rest.

The external application of heat, at a moderate temperature, serves of itself to call forth the internal warmth of the body, as by exercising a stimulating action immediately on the organ of the skin, it promotes more lively excretion and secretion, by which means the equilibrium of organic nature is restored. Moderately warm air and the warm bath are the principal means for promoting this end.

#### § 447.

One of the principal means for calling forth natural heat, is FRICTION. By the activity excited in the organ of the skin, the activity of life is animated in the organization in general; the consequence of which is, increased motion of the blood and all the juices, exalted activity of excretion and secretion, greater irritability of the nerves. This revolution in the body may, however, be attended with prejudicial consequences, if the friction be not applied with a careful attention to the state of the vital principle. If the vital principle is confined in a great degree, so that  
susceptibility



susceptibility of irritation seems to be destroyed, as in apparent death, the friction must be applied with great moderation\*. Too strong friction increases the accumulation of the blood in the right side of the heart, by which the expansion of vital activity is rather impeded. But when re-action is perceptible, stronger friction may be admitted. When the accumulation of blood towards the left side of the heart is not so great, and when contraction of the heart is observed, brisker friction may be employed. But during this operation, attention must always be paid to the imperfect, and still oppressed vital activity. As long as life is feeble, too violent friction would be attended with the prejudicial consequences above mentioned.

During the application of friction, attention must be paid also to the state of the organization. A body, the organic parts of which are in strong cohesion, and in which the fibres have great solidity and extensibility, will admit of stronger friction, than one where the fibres are soft and brittle, and where the admixture of the organic parts is such that they can be easily separated. In the last case, too violent friction will promote derangement of the solids, and the separation and solution of the fluids. Hence it happens, that in malignant fevers, the epidermis is easily injured.

To maintain, in a permanent state, the activity of the vital principle, and the expansion of natural heat, the friction must be continued. If life be exceedingly weak, to interrupt this operation would be highly dangerous. During this continuance, the friction must be increased or lessened, according to the observed

\* Coleman's Abhandlung über durch ertrinken, erdroffeln, erstickten gehemmte athemholen. Leipzig, 1793.

served state of the vital activity, and of the temperature of the heat of the body.

A counter-indication to friction is too great irritability. When it exists, however, chiefly in individual organs, friction applied to a remote part of the body, will tend to promote a derivation, and to lessen the irritability.

It will be of great advantage to combine friction with other stimulants. The friction may be performed with cloths dipped in spirituous liquids; and animating means, or external stimulants, such as electricity, embrocation, &c. may be employed along with it. Friction is particularly serviceable in conjunction with the tepid bath; as the former by its action tends, in an eminent degree, to produce a uniform distribution of the natural heat, while the latter restores irritability. What a noble coalition of corroborants and stimulants!

Friction has always been considered as of service to promote perspiration and free evacuation; and no better auxiliary means have been found for weakness of the lower belly, relaxation of the bowels, and rheumatic obstructions.

#### § 448.

Another means of calling forth natural heat is MODERATE EXERCISE. Motion is an excellent promoter of health, even when employed by the weakest people; and if we cannot procure active motion for them, we ought at least to procure some of a passive kind. This motion must be proportioned to the powers, that it may not produce straining and exhaustion.

haustion. Under the term motion we understand, in the most extensive sense, all those things by which we can effect a certain increase of activity in the organs of motion.

§ 449.

All stimulants, internal as well as external, which excite an increased activity of the vital principle, or which have a peculiar action on individual organs, promote the expansion of internal heat. To this head belong spirituous aromatic nourishment, medicines, which have an immediate action on the stomach, and vital air inhaled into the lungs: external stimulants are vesicatories, caustics, whipping with nettles, &c. applied immediately to the organ of the skin.

§ 450.

Sudden changes of different stimulants may be employed also to call forth the natural heat; for example, the alternate application of external cold and heat, variety of food, &c.

§ 451.

Increasing or lessening the action of stimulants, above or below the degree before employed, tends to promote the same object. Thus the sudden application of cold excites internal warmth; the cold bath excites afterwards increased perspiration. A powerful draught of spirituous liquor, taken at once, excites a greater warmth than the same quantity given in small portions by degrees.

§ 452.

## § 452.

It now remains to take into consideration the particular kinds of calefacients. By these we accomplish our object in proportion to the existing susceptibility of irritation.

## (a) EXTERNAL CALEFACIENTS.

## § 453.

THE TEPID BATH claims here the first place. It is stimulating, strengthening, moderately active, and may be applied with most advantage where there is real debility. It is, however, peculiarly useful where there is more tension of the fibres, with sufficient cohesion, and an uniform admixture of the organic parts, but where there is a deficiency of susceptibility of irritation from the action of external stimulants, and where in general the organic parts themselves have in a considerable degree been injured. Hence the beneficial effect of the warm bath on children, in whom there is a deficiency of the power of action, with an excess of irritability. Hence also its good effect in nervous fevers. The warm bath, on account of its stimulating power, tends to disperse obstructions and congestions, and by its general activity, and perhaps its mechanical pressure on the surface of the body, to promote an uniform distribution of the juices; but it manifests its action, in particular, immediately on the organ of the skin, by restoring the functions of excretion and secretion; at the same time, it is the best means for purifying the skin.

The ancients ascribed the national debility of the Romans, in the periods of their decline, to the use of  
the

the warm bath. But the Romans employed chiefly the hot bath, which by immoderate use produces great relaxation of the solids, and renders the body delicate.

On the other hand, lesion of the organic parts appears to me to be a counter-indication to the warm bath. Where an actual separation of the organic admixture has taken place, where the solids have lost their cohesion, where great relaxation of the fibres, and commencing solution of the juices exist, the tepid bath would render this state worse: it would increase the relaxation, promote the separation of the organic admixture, and thus hasten decomposition of the organization.

This distinction is of importance; and we thence see why the warm bath in putrid fever is improper; why in the latter case the sudden application of cold serves as a stimulant, and why in most kinds of swelling wet is so much dreaded, because it increases watery accumulations.

If we follow our own natural sensation, we shall soon be enabled to know whether the warm or the cold bath is proper for us. The debilitated patient seeks the former; but the debility must not have proceeded so far, that the organic component parts are considerably injured. In the before mentioned case of actual putrid fever, of the highest asthenia, weak action of the vital principle, and lesion of the organization, continued cold, or the cold bath, can as little be applied as the warm bath, and for the same reason, as it would totally suppress the weak activity of the vital principle. The sudden stimulating application of cold can here only be of use, and therefore Lettsom ex-

posed his patients, attacked by putrid fever, to the cold in winter, and hence the beneficial effect of Theden's cold fomentation. But this can be no proof of the positive strengthening power of cold.

Besides its power to lessen irritation, the tepid bath, on account of the chemical animating component parts of the water, and the oxygen which is absorbed and communicated to the juices of the body, has a direct strengthening action.

From the beneficial effect of the bath, as the means of purifying the skin, and lessening the tension of the fibres, the generality of its effect on the surface of the body, and the vivifying power of the oxygen of the water, we may account for that exhilarating, agreeable sensation, which is experienced after the use of the tepid bath.

The tepid bath may be made still more efficacious by the addition of strengthening or stimulating medicines. It is a great advantage, in this mode of application, that the corroborants can be immediately introduced into the body, without putting the power of digestion into unnatural activity, and without increasing, in an immoderate degree, the motion of the blood, by violent excitement of the skin. In the most obstinate diseases of the lymphatic system, where there is a high degree of debility; where we must guard against all violent irritation, and avoid every thing that might put the functions into too great activity, and where the system of digestion is particularly affected, this bath therefore is of the most important service. In the period of childhood, when there is a high degree of irritability and atonia, in a state of convalescence, in all diseases which occasion eruptions

tions on the organ of the skin, in congestions, obstructions, and rigidity of the vessels, and lastly, in old age, to lessen the tension of the fibres, to mitigate the dryness of the skin, to dispel obstructions, to bring into order, and produce an equilibrium in the irregular excretion and motion of the juices, to enliven the whole body in general, to refresh and reanimate, and to increase on the one side the relaxed activity of the vital principle, and on the other, to guard against blunting the susceptibility of irritation, and to prevent separation of the organic admixture, the tepid bath is of great service.

All these beneficial effects will be produced in a greater degree by the tepid bath, if medicinal component parts be combined with it. Aromatic herbs, soap, bran, cinchona, malt, &c. are, therefore, mixed with the water; ferruginous baths are also employed by using iron balls, or adding about two drams of vitriol of iron to each bath. These different modes of application must be determined by the physician, according to the case, and we may here call to mind, what has been already said respecting the stimulating strengthening method. I must however remark, that the ferruginous bath, where there is a phlogistic predisposition, or, in general, too great irritability, connected with an unnatural motion of the blood, or the accumulation of crudities in the *primæ viæ*, is counter-indicated.

§ 454.

Among the external means of exciting heat is the DRY BATH; covering the body with warm ashes, with pure sand heated over the fire, brandy lees, &c.

These means have been employed with great advantage, to bring to life drowned persons, but they should not be delayed too long. They ought not to be our last resource, and ought to be applied before all others, in order to call forth susceptibility of irritation. Keeping in view the observations already made, in regard to the water bath, it is here to be remarked, that lesion of the organic parts makes a counter-indication. In case a high degree of irritability exists, the dry bath is improper; it possesses a sufficiently calefactive property, but is not of the same mild and softening nature as the water bath; on the other hand, where there is great relaxation and laxity in the fibres, and watery accumulations, it is to be preferred.

## § 455.

The VAPOUR BATH is calefactive, but at the same time highly relaxing, and by misapplication, produces too great distension of the vessels, and consequently congestions; increases the determination of the juices towards the skin, and at last macerates the solids; on the other hand, where there is great rigidity of the fibres, and, in particular, too great brittleness and hardness of the solids, it may be of service, and, therefore, is particularly well suited to the bodies of the Russians. So far as these faults of the organic parts are impediments to an uniform distribution of the vital principle, and to its proper activity, the vapour bath may be admitted, even in asthenia.

## § 456.

The application of the natural heat of the body  
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was long ago recommended as an excellent means for prolonging life. Boerhaave advised an old prince to place himself between two young females, and by following this prescription, he obtained a respite for his life. This method was much employed formerly at Paris. Consumptive people were advised to sleep in the same bed with a sound person. It is believed that, in this manner, strengthening powers pass from one body into another, as human heat is the most homogeneous to man. But besides the danger of diseases being communicated also in this manner, the sound person always suffers, and sometimes becomes consumptive. We have the instance of an old infirm lady, who occasioned the death of several of her maids, whom she made to sleep with her.

§ 457.

Animal heat. The beneficial advantage of applying fresh, newly killed animals to parts affected with pain, is well known. Heraclitus cured himself of the dropsy, by causing himself to be inclosed in the belly of a newly slaughtered ox\*. An animal bath of this kind possesses great invigorating power. Oxen, therefore, among the rich, ought not to be spared, in order that this method, however singular it may seem, may be employed in cases where there is a great degree of asthenia, coldness of the extremities, and inactivity of the vital principle.

§ 458.

By warming the temperature of the air, we have still another means for communicating heat to the

\* See *Bacon de vita et morte.*

body. To determine the proper degree, a thermometer may be employed. In the application we must be guided by habit, and the state of the body.

(b) INTERNAL MEANS FOR PROMOTING WARMTH.

§ 459.

These are applied immediately to the internal parts; such for example as the stomach and the lungs. Among these are:

1. MEANS WHICH MERELY COMMUNICATE WARMTH; warm water, tea, &c.

2. MEANS WHICH BY THEIR STIMULATING POWER CALL FORTH WARMTH; spirituous liquors, medicines (fudorifics), spices. By these, activity in the organs is increased. By inhaling vital air, which increases the activity of the lungs, and consequently accelerates the circulation of the blood, the extrication of heat is promoted. Injections warm by stimulating the bowels.

§ 460.

Calefacients are applied locally, for heating and exciting the body in general, and in the diseased state, for producing the same effects in individual organs. In the first case, their object is not only to promote warmth, but also to stimulate. They are applied, in particular, to those organs which have the greatest consentus with the rest; and to this head belongs warming the region of the stomach and the back: also for the purpose of forming a derivation, in order to produce greater activity in individual organs. They are applied, in particular, to such parts of the body as are the first to lose their heat; such for example, as  
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the feet; hence it is so necessary, that the feet should be kept warm in old age.

Besides the local application of means for calling forth heat, we must mention also calefacients. There are various methods of employing the latter: as warm fomentations, fomentations by means of cloths dipped in warm brandy or wine, warm bricks or tiles wrapped up in cloths, and applied to different parts of the body, moving a warming pan covered with flannel backwards and forwards, over the spine, laying a bladder filled with warm water on the pit of the stomach, &c.

§ 461.

Warmth, increased to a high degree of heat, acts as a stimulant. It may be applied with advantage where there is great inactivity of the vital principle, and deficient irritability; but rather locally, than generally, and only for a short period, that it may not, at the same time, produce a relaxing and pernicious effect. But the greater the deficiency of the vital principle, the more cautious must we be in the application, lest by too violent irritation, the small stock of life should be exhausted entirely; as for example, in old age, where there is a deficiency in the coherence of the solids, and in the mixture of the fluids, and where the juices have a tendency to solution, it would be prejudicial; it would be no less hurtful where an exceeding low degree of heat has before existed, as in the case of persons benumbed by cold. But even in cases where these counter-indications did not exist, where the activity of the vital principle was rather oppressed, while the organic parts were not injured,

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jured, the sudden application of heat has been attended with great effect. Thus in cases of apparent death, embrocation with boiling water is recommended. In this manner, BIERNSTIEL saved patients who were quite benumbed and lamed, by pouring boiling water on their feet\*. An important instance of this may be found in Hufeland's *Newest Annals of French Medicine*†. A woman sixty years of age, attacked by a violent fever, had lost all consciousness; her pulse was weak and interrupted, her tongue was black, her lips were of a copper colour, the skin over her whole body had assumed a blueish tint, and was covered with a cold perspiration, the intestinal canal was lamed, and the lower extremities were cold. She was made to swallow about a spoonful of strong Spanish wine, and her whole body was covered with a number of scorching hot towels. This application was continued for several hours, and an injection with strong emetic wine was administered. By these means the patient recovered heat, and was soon restored to the use of her senses and of complete life.

## § 462.

The lessening of heat to cold is applicable also in asthenia, notwithstanding its direct debilitating property. But we must make a distinction between its being suddenly applied as a stimulant, or used permanently. In the first case, when employed properly, it may be one of the strongest of stimulants, and serve to render the impeded vital activity free, and to excite the natural heat of the body, and  
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\* Die Sterblichkeit in dem Krankenhause zu Bruchsal. 1789.

† Vol. I. p. 314.

ought to be called an indirect corroborant. In the second case, when applied permanently, it debilitates as it becomes a stimulant lowered below that degree, in which heat is necessary for maintaining life. Hence the prejudicial effects of the cold bath to the debilitated.

Cold confines the activity of the vital principle, and if employed in too great a degree oppresses it entirely; at the same time it attacks the organic parts, excites the most violent contraction in the vessels of the skin, propels the blood from the external to the internal parts, and occasions obstructions of the juices, accumulations in individual organs, destroys the skin, makes it too brittle and hard, and consequently unfit for the business of absorption and excretion; but in actual sthenia, where there is real vital strength, or rather in hypersthenia, where there is excess of strength and of internal heat, cold is of service to lessen this superabundance. Applied to feeble persons, however, it weakens them still more; blunts susceptibility of irritation, or by its violent stimulus occasions immoderate tension, which is soon followed by greater debility.

The sudden application of cold as a stimulant is totally different; it may be employed in cases of debility, provided the sum of the vital principle is not so far lessened, that strong excitement would exhaust it entirely. Washing daily with cold water is, therefore, so beneficial to feeble children; but in this case a sponge dipped in cold water is to be drawn speedily over the body, which must be immediately dried. The suddenness with which the cold is applied makes it a stimulant; we must not, however, employ it till  
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it exercise its debilitating powers, but endeavour to maintain the activity of the vital principle, which this stimulant has excited. Corroborants and calefacients must succeed; and the disengagement of natural heat may be promoted by friction, and by internal and external calefactive means, but it is particularly favoured by rest. Immediately after the application of embrocation with cold water, the body is to be rubbed, to be wrapped up in warm cloths, and then to be suffered for some time to remain at rest. Cold, when used as a stimulant, is to be applied in the like manner; for example, ice cold fomentations, &c. in typhus.

## ELECTRICITY.

## § 463.

The study of this important remedy affords many noble prospects for the healing art. Much may be expected from its stimulating and strengthening action, in regard to the maintenance of feeble life, especially as the electric principle has so great an attachment to the vital principle, that it not only excites its activity, but even supplies it with pabulum. But however beneficial it may be when properly used, the misapplication of it is prejudicial. Violent electric shocks conducted through the principal vital organs injure the organic parts mechanically, and exhaust the vital principle.

(a) STIMULATING APPLICATION OF ELECTRICITY. It may be employed with advantage when irritability is lessened, and vital activity oppressed; but the effect will be more certain, when applied in a moderate degree, proportioned to the degree of confined vital activity.

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Shocks must be used with great caution. An exceedingly efficacious method is that of causing the electric fluid to pass speedily through individual parts of the body, by bringing the insulated patient into connection with the negative or positive conductor, and then by means of a discharger brought into contact with the opposite conductor, drawing the electric matter from the body.

When electricity is to be applied in a strong degree, it will be best to begin with a weaker.

In continuing the electric method of cure, the common mode is to strengthen the electricity in a progressive manner, till at length there remains no degree from which any effect can be expected, as susceptibility of irritation becomes always more and more blunted. This will be more the case if a very strong degree of electricity has been employed at first. In continuing the cure, the method, however, must be changed: the stimulus must sometimes be lessened, and sometimes increased, and it ought also to be sometimes interrupted by short intervals or pauses.

Electricity as a stimulant may be applied, in particular, where there are local defects in the organs, in order to remove obstructions, and to bring the influence of the vital power on such organs again into full activity.

(b) APPLICATION OF ELECTRICITY AS A CORROBORANT. Electricity acts as a corroborant by its animating power on the vital principle: Whether it be inhaled, imbibed, or absorbed, it increases the activity of life, and consequently of all the functions. But it has a strengthening effect also on all the organic parts; restores the elasticity of the fibres, which  
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has been weakened, and maintains an uniform admixture of the component parts: in all cases its action is like that of vital air. Where can we find any means more powerful for maintaining feeble life? When employed in this manner, the electric bath is so beneficial. "Electricity," says an ingenious author\*, "is the most powerful promoter of evaporation, because it unites in itself all the properties requisite for that purpose, and therefore it can moderate too violent circulation of the blood, when depending on causes which may be expelled through the surface of the skin. It removes obstructions, partly in consequence of the strengthened action of the stimulated vessels, and partly of a highly subtle all-penetrating matter, which supplies what it wants in mass by the velocity of its motion. It increases the appetite, and promotes all the excretory functions, or only some of them according to pleasure. It is a corroborant; for it gives to the whole body new power and activity, as it animates, in a beneficial manner, the spring of life itself."

The continued application of electricity as a corroborant deserves our attention, since it tends to prolong the lives of the feeble, the infirm, and the old. It ought, therefore, to be more used for this purpose than has hitherto been the case.

In general, the electric method hitherto has been too much limited. It has been employed with advantage only for a few diseases, though it has been proposed for almost the whole of them, and it has been often employed where it was least proper.

In

\* Beiträge zur anwendung der elektricität auf den menschlichen körper von J. G. Boeckh. Erlangen, 1794. p. 164.



In general, electricity is applicable in real asthma, where there is a deficiency in the activity of the vital principle, and where irritability is at the same time weak; where the organic parts are injured, and where the connection of the animal admixture, with the vital principle is deranged. To this head belong most kinds of apparent death, lameness, according to Reil's idea \*. Electricity, on the other hand, is not applicable where there is exalted vital activity, and immoderate irritability, a disposition to congestions and bloody flux, and in general in the inflammatory diathesis, where by its stimulus it would render the evil worse.

#### GALVANISM.

##### § 464.

The galvanic, or so called animal electricity, is a mean of exciting irritability, even when it exists in a very low degree. It has been proposed, therefore, by Creve, as a test in cases of apparent death; and Sommering throws out a hint, that metallic stimulants might be applied as means for calling into life persons apparently dead; but unfortunately he has not yet pursued this idea any farther. Metallic stimulants might be the means also of prolonging feeble life, in preventing, for a certain period, the exhaustion of the vital principle, by exciting and maintaining irritability. Irritability is a property of ANIMATED organization, an effect of the vital principle, which shews itself still active, even after we can discover no other traces of the vital principle, and which disappears the last,

\* Reil *Über die erkenntnis und kur der fieber.* Halle, 1797.  
Part I.

last, when the organism is completely destroyed. We have succeeded in keeping it in activity nearly till its complete departure, by means of metallic stimulants, without either weakening it or hastening its annihilation. Hence the advantage of these means over all other stimulants. The only difficulty is a convenient mode of application. Observations made on the activity of the galvanic fluid, when conducted from the rectum to the tongue, may throw some light on this subject, and in particular, the application of galvanic stimulants to the vessels of the skin, by which the serous excretions from ulcers are promoted\*.

#### APPLICATION OF THE DIFFERENT KINDS OF ARTIFICIAL AIR.

##### § 465.

Though the great benefit which BEDDOES promises us from the application of various kinds of artificial air can not perhaps be realised, the discoveries which modern chemistry has made in this respect afford us the noblest prospect, in regard to bringing the art of medicine to perfection. The latitude of their application may be extended to every part which comes in contact with the external air; as the lungs, the stomach, the bowels, and the skin; they act both as stimulants and corroborants. But as my object here is not to give a dissertation on the artificial kinds of air, I shall only offer two observations on the application of mephitic and oxygen gas. Fixed air is applicable where there is a deficiency of irritability, with a sufficient stock of the vital principle, in order to dissipate

\* Beweis dafs ein bestandiger Galvanismus den lebensprocess in dem thierreiche begleitet von. F. W. Ritter. Weimar, 1798.

dissipate congestions, and to set the stagnant fluids in motion: the other mephitic kinds of gas act by their want of oxygen, and may be employed in the inflammatory state, where there is exalted irritability, as they lessen the stimulus and inflammation. In the opposite case of lessened irritability, and activity of the vital principle, where there is no feverish affection, but rather relaxation and cachexy, with a high degree of nervous weakness, and in Brown's direct debility, where cinchona, æther, and Icelandic moss, &c. are applicable, oxygen gas may be employed with propriety. How refreshing for such patients to inhale pure country air, and how beneficial must it therefore be, when this air, concentrated by art, is introduced into the lungs.

The artificial application of these kinds of air is performed, either by immediately inhaling them into the lungs, or by filling with them the apartment where the patient resides, so that the air may exercise its action on the organization in every way possible. The experiment which Achard made on animals, by making them inhale different noxious kinds of air, till they appeared to be dead, and then placing them in a vessel filled with vital air, till they revived, seems to confirm this observation. To render these kinds of air more efficacious, they ought to be more employed, and longer continued: they will then serve as artificial means for prolonging life; for promoting the process of breathing, and strengthening the weakened vital principle.

§ 466.

A very old method, the efficacy of which cannot  
be

be denied, is that of inhaling the vapour of fresh turned up earth, which indeed has in it something strengthening and refreshing. Bacon was acquainted with a very old man, who every morning, as soon as he awoke, caused a piece of earth to be held before his nose, that he might inhale the vapour. He recommends, therefore, the smell of fresh earth, which may be obtained by following the plough, or digging up the earth, particularly in the spring. Hufeland \* has lately recommended these means to consumptive persons, who may inhale the vapour, either in the open air, or in an apartment. The sensation produced by it, is like that felt on inhaling vital air, and is inexpressibly animating †. This, therefore, is another mean for maintaining feeble life.

#### MINERAL WATERS.

##### § 467.

The use of mineral waters depends on the quantity of oxygen and hydrogen which they contain, and their proportional union with mineral component parts: they have an animating, stimulating, strengthening effect, according to their mixture. It is by this criterion, that we must determine respecting the use of mineral waters for the debilitated: in other respects we

\* See his Journal, vol. i. p. 386.

† The application of earth, freshly dug up, I have found of great service in lameness of the extremities, especially when accompanied with desiccation. I caused the affected part, either in the open air, or in the house, to be entirely covered with earth, and to be kept in that state for half an hour. When the part was uncovered, it was found to be in full perspiration. This process was daily repeated.

We may apply to them what has been said on the employment of stimulating strengthening means, and the effect of the artificial kinds of air. Waters which contain a large quantity of oxygen gas, serve to animate too weak irritability, and to strengthen the relaxed fibres. In the phlogistic diathesis, where there are crudities in the first passages, they are counter-indicated; but when mixed with other component parts, or rendered milder in their operation, by the use of medicines, at the same time, they may be employed with safety. Water which contains a great deal of fixed air, requires in its application attention to the same rules as those before given, in regard to the use of the different kinds of air. Sulphureous waters, where there is great irritability, and a phlogistic diathesis, are improper; but on the other hand, in obstructions without fever, they are beneficial. What will be said in the third part of this work, on ferruginous means, may be applied to chalybeate waters; the good effects of which will be much promoted by proper regimen.

§ 468.

Light is an object which deserves the attention of the physician. (§ 54.) A moderate degree of light, is that which can be best endured by the debilitated. Formerly physicians were accustomed to place their patients in darkness, a very singular anecdote respecting which may be seen in Dr. Zimmerman's conversations with Frederick II. To this head belongs aversion to light, and light-hunger.

## § 469.

Transfusion was formerly considered as a mean for prolonging life, in cases of debility; but the consequences were exceedingly doubtful. The few observations which have been made, afford us very little in regard to the certainty of this method. The proposal of DARWIN is singular\*.

\* Zoonomia, Part II. p. 220.

## CHAPTER V.

## REGIMEN FOR THE DEBILITATED.

## § 470.

BEFORE we proceed to the particular objects which form the subject of this chapter, we must first point out two errors into which physicians may readily fall, when they lay down rules of health for feeble patients. The first is, that the debilitated must observe a peculiar mode of life, totally different from that of people in sound health. They are subjected to the regimen of invalids, by which means their infirmity is converted into real disease, and the debility maintained. They are guarded with the most anxious care from the influence of the weather, and the least breath of cool air; they are scarcely allowed to take the smallest exercise, or if they do, it is with the utmost caution, lest they should be hurt; the tenderest and most delicate food is prescribed for them; light vegetable nourishment, weak beverage; in a word, they are prevented from being exposed to the action of strong stimulants, by which they might be put into greater activity, and they are kept in a continual state of inaction and rest, by which the internal and external powers are relaxed. To this may be added prejudice, superstition, and the misapplication of stimulating or strengthening things, which causes people to dread all excitement of activity in cases of debility.

ty, and thereby prevents the possibility of strengthening and hardening. If the debility be the consequence of excessive excitement, it may, in most cases, be removed by lessening the action of the stimulants, and not by totally withdrawing them: in regard to external stimulants, the nourishment, if too spiritous, and too highly seasoned, must be changed, &c. and in regard to the internal, bleeding and bathing may be employed, &c. These means, however, must be adopted only in a certain degree, and for a certain period, in order that the debility may not be increased: the object merely is to remove the causes of debility. If the debility arises from a deficiency of the necessary excitement, this deficiency must be supplied; and in that case, the strengthening diet, properly so called, is applicable.

By mistaking the Brunonian system, however, we may readily fall into the opposite error, and wherever we see asthenia, think only of corroborants. But what kind of corroborants? Without paying attention to the causes of the asthenia, we immediately comprehend under this head, stimulating, strengthening food; wine, spices, flesh, and every thing else of the like kind. As I have already spoken of this pernicious misapplication, in the introduction to the third chapter, it is needless to add any thing more here on the subject.

#### § 471.

A peculiar regimen is necessary for debilitated patients. This, however, does not consist in food and drink prepared in a particular manner, but, generally speaking, in proper attention to that state. A great deal



deal must depend on previous habit and mode of life. Debilitated persons, by careful attention to their constitution, to whatever is beneficial or hurtful to them, may prolong their lives for a considerable time, if their conduct, guided by the necessary knowledge and experience, is seconded by the advice of the physician. To guard against immoderation, and to pursue with care a middle course, will be the best means to accomplish the proposed end.

§ 472.

Debilitated persons must be hardened, by lessening their sensibility in regard to stimulants. This hardening is the more necessary, as it is not always in our power to remove or withdraw the stimulants. Even the most delicate may, at a later period of life, attain to a certain bodily strength and firmness; and, on the other hand, those who have been educated in a very hardy manner, and grown up to be men, exposed to country air, and severe manual labour, by a sedentary life within doors, and refinement, may become exceedingly tender, and sensible of the slightest impressions. I am acquainted with the sons of several country farmers, who having followed literary pursuits, acquired in a few years all the bodily debility and nervous weakness which belong to such a state. Have they lost or gained by the change?

The bodies of debilitated persons must be gradually hardened. We can attain to real strength, only by a slow and tedious process. The transition to a more healthful mode of life, must be gradual, and must take place in such a manner, that the patients be not subjected to any disagreeable restraint. Besides, this

hardening method must be continued for a sufficient length of time, and people must never return to their former debilitating habits. This hardening consists partly in guarding against debilitating causes, and partly in employing strengthening means. The first forms the chief part of the cure. It is also the most difficult, and for that reason is too much neglected, as every thing is expected from corroborants. People plunge into the bath, and employ preparations of iron and herbs, wine and cinchona, without leaving off their darling habits; find themselves deceived, and lay their infirmity and disease to the charge of the physician and his art.

The physician must endeavour to find out the remote causes of the debility, and having discovered how far they depend on the will of the patient, must make the removal of them an indispensable condition. There are cases in which the physician, if he acts properly, and consistent with his own duty, will leave patients who have not resolution to consent to this removal, rather than degrade his art by improper compliance. The fault in the end, however, falls on the physician.

This hardening is either general or local; changing the former debilitating mode of life, removing from town to the country, the daily use of free air, laying aside too warm clothing, abandoning the use of too soft a bed, and accustoming one's self to bodily labour proportionate to the strength. The transitions must take place gradually; if they are made suddenly, they may be attended with danger. A great deal will depend on this improvement, in our mode of life, being the consequence of resolution and conviction.

tion. Of this CORNARO has given us an example worthy of imitation. In his thirty-sixth year, when his body was enervated in the utmost degree by dissipation, he had the courage to subject himself to the observance of the strictest regimen, by which he guarded, on the one hand, against debilitating causes, and on the other determined the nature and quantity of his food. His resolution was therefore rewarded with a life of nearly a hundred years.

§ 473.

Local hardening of the organs consists partly in strengthening those organs which are more debilitated than others, and partly in strengthening the chief vital organs, in order to strengthen and maintain, by these means, the health of the body in general.

Sometimes individual parts of our bodies suffer from a particular debility; as for example, the stomach, the lungs, the eyes, the extremities, &c. This debility may be known by some imperfection in those parts; by their incapacity for discharging their peculiar functions; by certain affections which take place in them; by a disposition to local diseases, and, in the last place, by their peculiar susceptibility for the general diseases of the body, by which they are chiefly attacked. Frequent pain of the stomach, belching, the symptoms of indigestion, when they occur after a light meal, a particular weakness of the organs of digestion in disease, or the appearance of these affections on the commencement of disease, are signs of a weak stomach. Organs debilitated in this manner, must be strengthened; and by these means we shut one passage against disease. I here allude to the strength-

ening means of food. This strengthening method we must direct either towards the suffering organ, in particular, or we must by general strengthening restore the deranged equilibrium of the whole organization. We strengthen the organ of the skin by cleanliness, washing, bathing, the use of fresh air, moderate exercise; the lungs by inhaling pure air, and by the moderate use of the voice; the stomach, by moderately stimulating food, motion, and bodily labour, &c. One organ is strengthened by another, with which it is connected; for example, the organs of digestion, by strengthening the skin, &c. It may be here readily understood, that debilitating causes must be guarded against at the same time. By strengthening and hardening the body, in an uniform manner, we remove partial debility, which may have arisen from the exclusive use of certain organs.

By strengthening the principal organs, we endeavour to maintain health in general. This strengthening method consists not so much in corroborants applied to these organs, in particular, as in careful attention to maintain them in a certain state of perfection and strength, and to guard them from debilitating causes. It is of the utmost importance, that life should be preserved sufficiently active in these principal organs, as long as possible. On this depends the prolongation of our existence. The lungs, the stomach, the skin, and the organs of generation, are those chiefly to which our attention should be directed, and on the good state of which our health and well-being principally depend. The health and good condition of only one of these organs, has a great influence in maintaining life. As a proof of  
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this, let us only attend to the observation that old people have generally a good stomach, and that eunuchs never attained to a great age, &c. The chief point here is to guard against all those things which have a pernicious influence on these organs.

§ 474.

I now come to the diætic regimen for debilitated patients; but without giving a general system on this subject, I shall confine myself to a few observations in regard to the asthenic state.

§ 475.

The first thing requisite for maintaining life, is PURE AIR; and this is the principal condition under which the restoration of health is possible. But in defining the relative goodness of air, in regard to patients, we make a distinction between the two following states:

1. EXALTED UNNATURAL ACTIVITY OF THE VITAL PRINCIPLE; the consequence of which is increased irritability, and feverish affections.

2. LESSENERD, WEAK ACTIVITY OF THE VITAL PRINCIPLE; weakened irritability, a serous, cachectic diathesis.

In the first case, too pure air would exalt the excitement, promote the inflammatory diathesis, increase the already too great quantity of oxygen accumulated in the body, and, by these means, hasten the consumption of life. This, however, is particularly the case, when an excess of activity and irritability exists in the lungs; and hence it happens that consumptive people find themselves much worse in a high situation,

situation, where the country is dry, than in low and damp districts. In such a state, air that contains a greater portion of carbon is more serviceable. The observation of Marcus Herz, that, during the prevalence of a putrid fever, he saw more poor patients in low confined hovels, filled with mephitic air of every kind, get the better of the disease, than people of the higher classes in spacious apartments, where the air was improved by incessant fumigation, and kept cool by a continual draught, is highly worthy of attention. But of this more hereafter.

In the second case, where there is lessened irritability without fever, a scorbutic cachectic diathesis, where we suppose a great portion of carbon in the admixture of the juices, pure air which contains more oxygen is required. Such patients, when in high districts, find themselves much better: at some future period, perhaps, they will be ordered to undertake aerial voyages, as in the opposite case sea voyages are recommended.

Marcus Herz,\* with great propriety, makes a distinction between impure and corrupted air. Air, not pure in a high degree, which has in it a less portion of oxygen, and which besides contains a greater quantity of carbon, and many foreign component parts, moisture, water, animal matters, &c. is not, on that account, entirely corrupted and prejudicial to health, provided a large quantity of azot is not present and if these foreign component parts are mixed with it only in a certain proportion. But air is corrupted and unfit for respiration if it contains an excess of carbon,  
and

\* Hufeland's Journal der prakt. heilk. II. p. 60.

and is contaminated with a great quantity of foreign component parts. It is, indeed, difficult in this respect to avoid misconception; but regard must be had to the state of the organization. Where there is great irritability, where the organic mixtures have a tendency to be dissolved, as in the putrid diathesis, the scurvy, and consumption, too pure air is prejudicial. The companions of the brave Captain Berings by these means lost their lives, as appears from the following passage in Muller's Collections respecting the History of Russia: "When orders were given for carrying the sick on shore they were all overjoyed, immediately got up, and put on their clothes, imagining that they would soon be cured; but when they proceeded from the lower part of the ship, where they lay, to the damp air of the quarter-deck, which was filled with a great many foreign particles, they expired." All this, however, must be understood conditionally\*.

But this observation ought not to prevent us from endeavouring to obtain relatively pure and good air; from supporting public institutions for promoting cleanliness; and from rendering the air, if possible, as pure as is necessary for preserving health. By an excess of the noxious kinds of gases, the air of marshes, the gas produced by animal bodies, &c. the goodness of the air is corrupted. Such air is exceedingly prejudicial to health, and produces diseases and death. But the case is different where, in certain morbid states, too pure air increases irritability, and hastens  
vital.

\* See Lichtenberg's explanation, in the preface to the fourth edition of Erxleben's *Anfangsgrund der Naturlehre*, p. 29. Roschlaub's Pathogeny, II. § 1035.

vital consumption. We know that many stimulants have a totally different effect on a diseased from what they have on a sound body. The change or sudden transition from air filled with azotic or carbonic gas, to air which contains a great deal of oxygen, is highly dangerous. It must not be inferred from what has been said, that azotic air is the best for sick persons, or that the more impure the air they can endure it the better.

But is not residence in the country, and the use of pure air, beneficial to debilitated patients, who, had they remained in the thick vapours of the town, would have been in their graves? All this is true; but, even in the country, the air is not always of the purest kind, and is sometimes hurtful to the lungs, though the situation may not be very high. In the country we only have air better than that in town; air free from the before-mentioned noxious mixtures.

The air may be purified by restoring its motion. Stagnant air becomes corrupted in the same manner as stagnant water. Opening the windows, and making currents of air, are the best means for purifying it; whereas fumigation dries the air too much, and fills it with stupifying vapours. Sprinkling or pouring vinegar on ignited stones, disengages carbonic acid gas; a better method is to evaporate vinegar slowly at a gentle heat.

A moderate temperature of the air is that best suited to health. Heat increases irritability to an unnatural degree; dries up and consumes the fluids of the body; excites an unnatural warmth; occasions an excessive determination of the juices towards the skin, and produces accumulations in individual parts, and particularly



particularly in those to which there is naturally a great influx of blood, such as the brain and the heart. The consequences of all these unnatural changes in the body are occasioned by over-heating. Habit, however, makes an exception. The effects of cold on the body have been already shewn. The influence of the air is changed by moisture or drought, and by its connection with heat or cold. The object of this work, however, does not allow me to prosecute farther this subject, which may be found treated in all compendiums on diætetic rules.

#### NOURISHMENT.

##### § 476.

Debilitated patients require no particular food, or food prepared in a particular manner; their regimen in this respect must be directed merely according to their state. Too light, weak nourishment is as improper for the debilitated, as stimulating or astringent food. But in regard to food, far more depends on the nature of the powers of digestion, the state of the organization in general, and on habit, than on the nature of the substances used. People have laid too much stress on examining the quality of food, and deduced consequences, in regard to its digestibility, which are not altogether agreeable to truth, without reflecting that nourishment in our stomach, which is an animated organ, undergoes changes totally different from what it does in the hands of the chemist. The most indigestible food, according to every appearance, is used by whole nations without any bad consequences. But this observation must not lead us so far as to declare  
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all kinds of food digestible ; but by comparing their quantity and quality with the state of the organization, we may form an opinion how far they can be employed with safety.

The state of the debilitated is totally different from that of the sound. The faculty of digestion is destitute of the strength necessary for preparing the food ; the influence of the vital power on the organ of digestion is lessened ; the fibres of the stomach are deficient in elasticity, and therefore too little nourishing matter is extracted from the food ; more of the coarser weak parts, incapable of affording nutriment, remain behind, and on account of the lessened power are not sufficiently evacuated ; the relaxed fibres of the stomach are unable to oppose the extension of the volume of the food. Sometimes the irritability of the stomach is exceedingly great ; and the immediate consequence is pain and uneasiness after eating, or the food is thrown out in an undigested state. In *asthenia*, the general state of the organization is to be considered ; its sensibility or insensibility in regard to stimulants ; the increased or lessened activity of the vital principle on account of the great consensus in which the organ of digestion stands with the other organs. In debility and disease there are many other external circumstances which have an influence on the activity of digestion ; and in consequence of which it is periodically weaker or stronger.

In debilitated persons, and invalids, the appetite is no sure guide, as their organs of taste are either blunted, or too irritable. The sensation which arises after the use of food is far more certain. Uneasiness after meals, oppression at the stomach, belching, swelling

of the belly, heat in the head, are signs that people have eat more than they can bear.

I must not omit to give some rules for debilitated people in regard to their meals, by the observance of which their food may be rendered digestible and nutritive.

1. TO MASTICATE WELL. By mastication food is reduced to a good paste, by which means the stomach is freed from the heaviest part of its labour, and can with more ease extract from the food its most nutritive parts. Those who masticate well require a far less quantity of food, because the nutritive matter in it is employed in greater quantity. It is probable that, during mastication, the lymphatic system takes up many useful particles, of which, by improper mastication, the body is deprived.

2. TO OBSERVE A CERTAIN REGULAR ORDER IN THE USE OF FOOD. The stomach, for its operation, requires time and rest: continually throwing in food, even when a little is taken at one time, keeps the stomach in an incessant state of irritation, and excites an unnatural craving for food, so that at last there arises a prejudicial excess.

3. TO EAT LITTLE IN THE EVENING. A heavy meal at night is improper, because the stomach has been filled at dinner with food which is then not completely digested. Hence interrupted sleep, and a determination of the blood towards the head.

4. TO AVOID ALL INTERRUPTION OR DISTURBANCE DURING MEALS. While the stomach is employed, the other organs must not be in too great activity. The labour of the stomach is impeded above all by overstrained activity of the organ of the soul; by violent

352 II. ASTHENOCOMIC; OR,  
violent passions; by exercising the powers of thought,  
&c.

5. TO AVOID AFTER MEALS ALL MENTAL AND BODILY EXERTION. The mischief which arises from violent passions and studying after meals is well known. Violent exercise also impedes digestion, excites vomiting and vertigo, and particularly in cases of debility.

6. TO DRINK TOO MUCH, DURING MEALS, IS HURTFUL. By these means the stomach is distended, and the food, by being too much diluted, is rendered less nutritious.

#### § 477.

ANIMAL FOOD is much decried by many of the faculty, as producing solution of the juices, accumulations of lixivious acridities, &c. while others recommend nothing but animal food, even in the most dangerous and hottest diseases.

Animal food, as BROWN himself allows, is to be classed among stimulants; "flesh alone," says he, "and all dishes prepared with flesh, are food from which too much excitement is to be apprehended."

We know that animal food increases irritability, and promotes the inflammatory diathesis; and therefore we ought not to recommend it so unconditionally as BROWN does (§ 266) in every degree of the asthenic state. It must naturally, if used immoderately, be attended with bad consequences where there is exalted irritability. In this state, flesh alone is highly improper. The case, however, is somewhat different when it is used with the addition of vegetables, or in broth; but even in that case the fat must be separated, because it is altogether undigestible and pernicious.

cious. But animal food is not accompanied with all those bad qualities ascribed to it: on the contrary, in a moderate quantity it is necessary for a weak stomach; it is hurtful only when used in excess, and alone. Animal food, in a small quantity, contains more nourishing parts than vegetable food, but at the same time it is more stimulating. It must be given in such quantity as to leave no reason for any apprehension on account of its stimulating quality; consequently must be rendered milder by a mixture of vegetables. Flesh broth is less stimulating and yet nutritive. There is no prejudice more destructive than that of forbidding all animal food to patients labouring under real vital debility; in tedious diseases vegetable food is too insufficient to repair the lost powers, unless used in a great quantity; but in that case it is attended with a worse consequence, as it distends the stomach too much by its volume, and besides does not give the stomach that stimulus necessary for digestion. In that small quantity which can be given to a weak stomach, without injury, it is not sufficiently nutritive. Vegetable food also to be digested requires great activity of the power of action in the organization, by which the digestive faculty is put into stronger activity. This power of action depends on real vital strength; the greater the vital strength, the better is the state of the organic parts; the firmer and denser are the fibres, and the better will vegetable food be endured: the power of action is maintained by motion and bodily labour. The strongest and most laborious men are therefore the best fitted for a vegetable diet, which, on the other hand, is improper for enfeebled persons, who lead a sedentary kind of

life; to such people it occasions uneasiness at the stomach, and other evils, and increases their weakness and debility.

A proper combination of vegetable and animal food (but the quantity of the latter must never be disproportioned to the former, rather too little than too much flesh) is the best suited to debilitated persons (§ 408); but in particular meat soups, freed from all fat, ought to be recommended.

FAT to a weak stomach is highly prejudicial; it becomes soon rancid, gives rise to corrupted acridities and putrid fermentation, and occasions inflammation of the stomach.

#### § 478.

A weak stomach cannot well bear ACIDS, though acid food and drink have been so unconditionally recommended to the feeble and sick. In the sthenic state, where the organs of digestion are not deficient in the power of action, acid food and drink may be of service; but where digestion is exceedingly weak they must be avoided. They occasion contraction, thicken the juices, and stimulate the fibres of the stomach; it is, therefore, improper when hypochondriacs and others, who suffer from a weakness of the intestines, are allowed to use too much acid food. This holds good in regard to acid liquors, water mixed with vinegar, &c. which are administered so unconditionally in all diseases, and which are fit only in real sthenia, where there is an inflammatory diathesis, but not in real asthenia, where there are viscidities and great weakness of digestion.

## § 479.

MILK, except when drawn immediately from its source, requires a strong sound stomach; by every kind of preparation it loses in regard to its digestibility, goodness, and nutritive qualities. This may serve to shew how improper it is to prescribe an unconditional milk diet to the debilitated.

## § 480.

In regard to DRINK, people must guard against TOO MUCH as well as TOO LITTLE. The first weakens digestion and distends the stomach; the second occasions desiccation.

The most salubrious drink is WATER drawn from a spring; but it is necessary that one be accustomed to it from infancy. Many cannot bear water unless it has been boiled.

BEER, supposing it to be pure and fully fermented, is a nourishing strengthening liquor for the debilitated. I have known men highly weakened by the loss of blood revived merely by the use of beer.

WINE is a real medicine, the principal corroborant in actual debility, where there is a deficiency of vital principle; it refreshes, invigorates, and strengthens digestion, and can be employed in a quantity proportioned to the deficiency of the susceptibility of irritation, but only in real debility. On the other hand, where there is immoderate irritability and vital activity, with feverish affections, it is hurtful; for it is the greatest stimulant as well as the first corroborant.

BRANDY, and other hot spirituous liquors, are not proper for the sick; they exceed wine in their stimulating properties, without possessing its strength-

ening power. Habit and custom, however, make here an exception; and brandy to brandy-drinkers is the greatest of corroborants, which, when they are attacked by disease, must not be withdrawn from them.

## § 481.

MUCILAGINOUS viscous food, mealy fruits, and eggs, &c. have the property of supplying the loss of nourishing parts, and are therefore of great benefit to exhausted, debilitated patients, but in particular when combined with meat soups, by which they are deprived of their inclination to acidity; they soften the acridity of the juices: the salap root, rice, barley broth, macaroni, and sago,\* have the same effects.

Fresh eggs boiled soft, are nourishing, and easy of digestion. An egg beat up with sugar and a little wine affords excellent nourishment.

SUGAR deserves that praise bestowed on it by Hunter †, as one of the best corroborants when the body has been weakened by long fasting. It ought to be used in all the food given to debilitated persons.

## § 482.

Sometimes the disease prevents nourishment to be given in such a quantity as is necessary for maintaining life. Assimilation is so weakened, that the nourishing matter cannot be employed for nutrition; the  
organs

\* We are told by Thunberg, in his *Flora Japonica*, that the Japanese set a high value on the pith of the trunk. They assert that soldiers, in the time of war, may, with a small portion of it, maintain life for a considerable time.

† Ueber di vener. Krankheit, Leipzie, 1787, p. 605.



organs destined for receiving and preparing the nutritive matter are injured and unfit for their functions; it is impossible, or at least difficult, to convey the nourishment through the usual passage, the mouth, as in the case of a locked jaw, or the stomach is so weak that every kind of nourishment occasions the most violent affections from indigestion, or so irritable that the nourishment is thrown out indigested. In these cases, on account of the violent consumption of the powers internally, and the want of reparation from without, death from exhaustion is to be apprehended. To prevent this, and to remove the continually increasing debility, much art is necessary in the choice and preparation, as well as in the application of the requisite nourishment.

When solid food cannot be given, or if it irritate the stomach too much, recourse must be had to gelatinous food, pulps, nourishing, strengthening soups, vegetable mucilages, meat broths, eggs, sago, rice, saloop, barley broth, shell fish, oysters, fowls, with a proper addition of sugar, milk, whey, and particularly sweet whey. These kinds of food which can be digested by a weak stomach, are, in small quantities, exceedingly nourishing, and where the lymphatic fluids have been exhausted by violent evacuation, supply matter for repairing that loss. The great benefit of them in cases of flux, lientery, salivation, and scurvy, is well known.

When nourishment cannot be conveyed into the body through the usual passages, there still remains the rectum and the skin. Nourishing injections of cinchona, and meat broths may be administered, or fomentations of this kind, baths of meat soups

and of cinchona may be applied; the steam of milk may be introduced into the mouth, and nourishing matter may be injected through the œsophagus. To strengthen, at the same time, baths, fomentations, and injections of wine, may be employed. These are means for procuring a respite to feeble life when in the utmost danger; and it sometimes happens that the powers are thereby maintained till nature is again able to become active.

We obtain nourishing matter for our bodies even through the skin. Some seamen, who ventured in an open boat on the ocean without provisions, supported themselves for several days by merely dipping their clothes in sea water. In cases of hydrophobia, fluids are conveyed into the stomach from a covered vessel. In scirrhus swellings of the throat, Darwin\* proposes to administer milk in a bladder fastened to a reed or catheter. The tube is to be introduced into the gullet, and the milk to be pressed from the bladder into the stomach. The means to be employed, in general, in such cases, may be found in those authors who have treated on these diseases. In cases of the most urgent danger, the physician often receives most assistance from some fortunate incident.

In such cases we must never forget to support the vital principle, that the reception and assimilation of nourishing matter may at least be promoted. Nothing answers this purpose better than wine. With nourishing baths friction is to be combined, to promote the activity of the organ of the skin in absorbing the nourishing matter.

MODERATE

\* Zoonomia, vol. ii. p. 1, p. 218.

MODERATE EXERCISE is also necessary for the debilitated. By inactivity the powers are lost; but this bodily motion must be suited to their condition. If the power of action be weak, and irritability very great, that is in a high degree of asthenia, only gentle or rather passive motion can be endured. I have seen the condition of consumptive patients rendered so much worse by gestation that the fever was considerably increased. But where there is no great deficiency in the power of action, where, in general, the vital principle is rather oppressed than lessened, stronger motion may be admitted. Bodily motion is, without doubt, an auxiliary in the cure of debilitated patients, or at least in prolonging their lives, especially when combined with the use of free air.

## § 484.

The more we enjoy the free country air the better it is for health, and happy are they who can spend their whole lives in it. Nothing is more strengthening and invigorating than a country life.

## § 485.

Debilitated persons must use clothes neither too cold nor too warm; in this respect they must be guided by the climate and the changes of the weather. For warmth, woollen clothing is preferable to fur, which, when the cold is moderate, keeps the body too hot, and increases perspiration. Flannel or woollen cloth, worn next the skin, preserves the body in an equal temperature, protects it from the influence of great heat as well as of great cold, and is particularly serviceable where there is a rheumatic

and gouty diathesis.\* In a word, the head must be kept cool and the feet warm; but in regard to the former, old people make an exception; a great deal, however, depends on habit. Those who have been accustomed from their infancy to warm clothing must not suddenly lay it aside. Narrow clothing, bandages, and strait shoes, must be carefully avoided. The less the clothing impedes the free motion of the body, the less it presses and confines, the more proper it is.

## § 486.

By a careful observance of CLEANLINESS, debilitated people may avoid many disageable consequences, which arise from neglecting to take care of the skin. Frequent changing the clothes, particularly the linen, and those next the body, will prevent its own evaporations from being again absorbed; airing and cleaning beds, which in summer ought to be done every month or six weeks, and in winter every two months, at least, are the more necessary, as beds attract many impurities, which particularly during sleep, when the absorption of the vessels of the skin is carried on with more activity, are again received into the body. Nothing is more invigorating than frequent washing and bathing; washing the body daily with cool water has been already recommended (§ 462). Debilitated persons, who have not been accustomed to this practice, must wash first with cool and then with cold water. This is an excellent corroborant both for children and adults.

## § 487.

\* The use of flannel next the skin has been unconditionally recommended to feeble patients. Hufeland, however, has given such proper directions on this head in his "Art of Prolonging Life," that nothing farther need be said on the subject.

§ 487.

What better means than bathing can be recommended for strengthening a debilitated body? It is not only a preventative of asthenic diseases, but the best remedy in the asthenic diathesis, as nothing is more efficacious to remove immoderate sensibility in regard to the air and weather; too delicate irritability in regard to external impressions, and even contagious poisons; and to render the skin a coat of mail to defend us from many external dangers. By these means the free activity of the organ of the skin, the business of excretion and secretion, are restored and maintained; and this has a most beneficial influence on the whole organization (§ 453).

In employing the bath we must never lose sight of the state of the animated organization. For debilitated persons the tepid bath is properest, but it ought never to exceed twenty-five degrees of Reaumur. In winter, the patient must bathe in a warm apartment. It will be of advantage to add to the water a decoction of from two and a half to three ounces of soap; it may also be rendered more efficacious by strengthening herbs and roots. For this purpose, three ounces of cinchona, or from five to six ounces of the flowers of lavender or camomile may be used. The patient, in general, should bathe every other day. In the height of summer, when the water is thoroughly warm, debilitated persons may bathe in any river. Bathing in a river has this advantage, that the water contains caloric which can be communicated to it by no art; and that as it is in continual motion it thereby penetrates better into the body. But except in the height of summer, in the months of July and August,

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I would not recommend river bathing to the debilitated, but; at any rate, they ought to bathe five or six hours after eating; and in the evening, at which time the water is warmest.

For house-bathing, in summer, river water, provided there be any in the neighbourhood, ought to be employed in preference to any other; or the water should be suffered to stand all day exposed to the sun, that it may acquire a more animating quality by the caloric and oxygen which it thus imbibes. To this may be added a proportional quantity of boiled water.

It must likewise be remembered that people should never bathe with a full stomach, or when the body is hot; and that they should plunge into the water gradually, first washing the head and breast, to guard against feverish affections. Those who labour under debility must, at first, remain in a river only a few minutes; in the tepid bath in the house they may continue a quarter of an hour, but while bathing they must make as much motion as possible. Catching cold, while bathing, is exceedingly pernicious, as the mouths of the absorbing vessels are open and distended; consequently, any sudden change from heat to cold makes a pernicious impression on the skin, which is then highly sensible; the vessels are abruptly closed, and by the sudden change in the organs of the skin, a dangerous change is excited in the body. The whole body, therefore, must be immersed in the water up to the chin; or the upper part of the body, out of the water, must be covered. For house-bathing, a sufficiently large tub should be employed; otherwise, while the lower part of the body in the water is completely warm,

warm, the upper, uncovered part, will be exposed to catch cold.

On coming from the bath, the body should be instantly wiped dry, and the clothes immediately put on.

After bathing, the increased perspiration should be maintained by moderate exercise; exceedingly feeble persons should go to bed.

It will be highly proper to combine friction with bathing (§ 447.) both during the time the body is in the water, and after the bathing is finished: by these means, the activity of the vessels of the skin will be maintained, and an uniform motion of the juices promoted.

§ 488.

Debilitated persons require more rest than those who are strong, to prevent that waste of the powers which is occasioned by great activity of the muscular functions. Many diseases cannot be cured, because the necessary rest is wanting. Nothing tends more to strengthen than sound and uninterrupted sleep, which the physician must endeavour to promote. This may be done not only by sedatives, but also by proper conduct. Labour and exercise suited to the strength; tranquillising the mind, the tepid bath, a clean but not too soft bed, and a salubrious roomy apartment, the air of which is sufficiently purified, are the best means for this purpose. The exercise must never exceed the powers, else the activity of the power of action will be too much increased, and the consequence will be too great mobility of the nerves, violent circulation of the blood, and interruption of sleep.

Free

Free air has a particular tranquillising quality. People never sleep better than when travelling. A little before going to bed, every thing that tends to give increased activity to the powers of the imagination, must be carefully avoided. Gentle, agreeable mental stimulants; simple ideas, which tire by their uniformity, are the best for disposing the mind to sleep. By the power of the will, and continued custom become habit, we may give to the mind, at the time of retiring to rest, a certain periodical insensibility in regard to mental stimulants. Sometimes the tepid bath, or bathing the feet at bed-time, promotes nocturnal repose. Too soft a bed is rather unfavourable to sleep; as too great a quantity of feathers heat the body, and produce debilitating perspiration. In summer mattresses are far more healthful. In our northern climates, indeed, we are accustomed in winter to feather beds, and I have observed bad consequences arise from exchanging them for mattresses, during that cold season. In persons having a gouty or rheumatic predisposition, the disease was by these means called forth. A well stuffed bed, with a pillow of the same kind, inclosed in a clean pillow case, and laid upon a bag of straw, with another light bed, instead of blankets, is recommended in preference to any other\*. A pillow stuffed with horse hair, is better than one stuffed with feathers, as the head ought always to be kept cool. Debilitating warmth is increased by too many bed clothes. The bed room must be airy, and at a distance from noise. In the day time, the windows should be kept open, and in summer this

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\* Adair's Medizin warnungen für schwächliche personen aus dem Engl. von Michaelis. Zittau und Leipz. 1791. p. 436.



ought to be done also in the night, making use of venetian blinds. ELECTRICITY is a good palliative for promoting sleep. I have observed, in general, that people slept much better at night when they used an electric bath in the day time. But it is only the gentler kind of electricity that tranquillises. Persons who complain of want of sleep should, before night, employ the electric bath for a quarter of an hour or longer; at any rate, this may be of use for a certain period, till the patient becomes habituated to this stimulant.

In the last place, a great deal can be effected by HABIT, which combines so many animal actions with our daily functions. Those who accustom themselves to sleep, and to get up at a certain hour, will generally be visited by sleep about the usual period. This habit tends to render sleep much sounder.

§ 489.

One of the principal sources of asthenia, is VENEREAL DISSIPATION. Without continence in this respect, it will be impossible to restore enervated people to health, or to preserve them in life: Where this is neglected, all palliatives for strengthening the body, and particularly the organs of generation, will be of no avail. The most important are the moral means, resolution, and continual firmness to guard against dissipation, however difficult it may be. To second these means, the physical may be employed; labour and exercise; a certain degree of mental activity; getting up early in the morning, as soon as one awakes; the daily and frequent use of free air, without too much regard to the weather; bathing and  
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local corroborants applied to the affected organs. Moral and physical means must be combined.

§ 490.

Moderate activity of the powers of thought, is an excellent mean for maintaining the life of those who are accustomed to mental labour. Works which require bodily exercise, and at the same time a certain agreeable activity of the mind, are exceedingly beneficial to people accustomed to labour with the head. Multiplicity of mental occupations, and exertion to accomplish a certain object, always afford fresh nourishment to the vital principle, while the being employed on agreeable objects, rivets the attention of the soul, and abstracts it from those which are disagreeable. Lessening the too great activity of the organ of the soul, by a transition to placid, agreeable ideas, will lessen, in general, the great irritability of the organization, as the consequences of the lessened irritability of the organ of the soul will be communicated to the body in general.

Sometimes a periodical lessening of the activity of the soul, will have the best influence on the health; but care must be taken to guard against the prejudicial effects of languor. The intervals must be filled up with occupations which require little thought, but at the same time sufficient to afford amusement. Thus a literary man, subject to hypochondriasis, was cured merely by abstaining from study during a whole summer, and becoming a rustic in the proper sense of the word.

## § 491.

Tranquillising the mind, freeing it from violent passions, and tormenting cares, has the most salutary influence in maintaining health and life; and without these, all other means will be ineffectual. Exciting agreeable mental activity, joy, hope, and love; moderate exertion, and exalted passions, prolong our existence, notwithstanding the greatest bodily debility. In the degree that these are deficient, vital consumption will be accelerated. Every thing, therefore, depends on maintaining a cheerful frame of mind, and in promoting good spirits by agreeable conversation and employment, travelling, a country life, friendship, social intercourse, and reading.

## CHAPTER VI.

ON THE MEANS OF MAINTAINING FEEBLE LIFE IN  
DIFFERENT ASTHENIC STATES.

## I. MAINTAINING FEEBLE LIFE IN CHILDHOOD.

## § 492.

## I. TREATMENT OF FEEBLE NEW BORN CHILDREN.

MAN, of all created beings, comes into the world the weakest and the most helpless. As Rousseau says, he would be obliged to lie on the spot where he is placed, like an inverted tortoise, were he not removed from it by the hands of others. Man, however, brings into the world with him, not only natural debility and helplessness, but artificial diseased debility, transmitted to him by debilitated, diseased parents. Do we not see phthisicy, cachectic, and venereal children brought into the world, who exhibit in their whole physiognomy traces of feebleness and old age? Sometimes children come into the world imperfect; their organs are not completely expanded, (§ 187.) and art must assist nature to effect complete conformation. Difficult and long continued parturition is likewise a cause of debility in the children, which are then feeble, and born only half alive.

## § 493.

We must make a distinction between that debility which is the consequence of an actual deficiency of  
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the vital principle, or rather of irritability, as in the children of debilitated parents, and that feebleness which arises from oppressed activity of the vital principle, or rather confined irritability; (§ 39. § 94. § 104.) as for example, when a child which in the womb had been exceedingly lively, and according to every appearance strong, has suffered during the birth, and come into the world apparently lifeless. In each of these cases, the strengthening method must be different. In the first, a cautious application of stimulants is required; the blood also must be spared, and none of it must be suffered to escape from the umbilical chord. In the second, the child is capable of enduring stronger stimulants, and according to circumstances and the well known signs which announce an accumulation of blood towards the head, a little blood may be taken from the umbilical chord; but in this operation, too much caution cannot be employed, as new born children cannot bear the loss of much blood. But the object here is, not so much to lessen the mass of the blood, as to make a derivation to prevent the congestion of too much of it in individual parts, and thereby to excite circulation.

The symptoms of both cases are well known. We must not, however, depend on external signs alone, but examine the previous circumstances during the pregnancy and delivery of the mother.

§ 494.

In the first case, where a deficiency of the vital principle, or rather of irritability, is supposed, we observe a pale wrinkled face, blue lips, and flabby limbs. During pregnancy the mother experienced various

symptoms of debility; found herself indisposed; suffered from deep rooted diseases of the lymphatic system; used bad undigestible food, and was subject to the whites, or to violent menstruation. Perhaps to this was added improper medical treatment, unnecessary and repeated bleeding, purgatives or emetics; all which gives reason to suppose that the fruit must have been badly nourished. In the second case, where the vital principle or irritability is merely oppressed, we observe the natural colour of the skin, and sometimes broad blue spots on it; a considerable warmth of the body; pulsation of the vein in the umbilical chord; the face red and swelled up, and the eyes sometimes projecting as in the case of plethora. The mother found herself well during pregnancy, and suffered from no deep-rooted disease, &c.

## § 495.

We shall now take a general view of the treatment of new born children. The mode of proceeding, in regard to apparent death, is so well known that it is needless to repeat it. I here mean that state where, on account of the functions of breathing and circulation being oppressed, there exists an apparent want of life. In the state of asthenia, the treatment of which is here given, there does not so much exist apparent lifelessness, as a weakened and confined state of the vital functions, so that life is in a certain bound state. The object then is, to call forth the vital principle, and to remove the impediments to its activity.

Life in this state is too weak to become perfectly active till the impediments are removed; or rather  
without

without the assistance of art it would again soon disappear.

§ 496.

The principal means for maintaining the feeble life of new born children is warmth, while on the other hand, cold is death to them; changing them from cold to heat, however, is particularly prejudicial. Care must therefore be taken not to expose them to the air immediately after the warm bath. A child, as soon as it comes from the mother, must be wrapped up in warm clothes, or put into a warm bed. If it be weak, it must be placed in a bath of tepid water, to which a little wine has been poured. Bathing in wine alone, is too benumbing for feeble children. Great care must be taken that the bath be not too hot, because heat debilitates as well as cold.

The activity of the vital principle must be farther excited by gentle friction; but in cases of premature birth, where the epidermis is exceedingly delicate, this process must be performed with the utmost caution.

The warmth must be incessantly maintained, because every time a new born child is exposed to cold, even after the end of several days, it is prejudicial. The degree of warmth to be applied must, as far as possible, be equal to the natural warmth to which the child was accustomed in the womb. Heat must be avoided; the heat of a stove, by which the air becomes corrupted, is particularly hurtful. A good method of communicating warmth to a feeble child is to place it in the body of a newly killed animal.

It will be of benefit also if the child be put to bed with a person in sound health.

### § 497.

The mischief which arises from the application of strong stimulants, at the period of recovering from apparent death, has been already mentioned, (§ 87.) and the case here is exactly the same. Nothing is more capable of extinguishing the commencing life in a moment. Strong stimulants, spirit of sal ammoniac, and the like, are at this period most dangerous. I am acquainted with instances where they destroyed all hopes of commencing life.

The object in view may be accomplished by careful attention to the different affections. The feeble eye must be screened from the light, and the feeble ear must be secured from violent noise. The thorax must be freed from phlegm by two small tea spoonfulls of the juice of squills; if symptoms of greater debility, apparent lifelessness return, gentle stimulants may be used, but during the application of them the necessary warmth must be maintained.

All violent agitation must be carefully avoided, and by securing rest to the child, nature must be allowed time for restoration.

### § 498.

#### 2. TREATMENT OF FEEBLE CHILDREN.

It is a great mistake to give feeble children a continually feeble education; to shut them up with the most anxious care in a warm apartment; to guard them against every change of the weather, and under



an apprehension that they may be hurt, to suffer their powers to become inactive for want of exercise. (§ 216.) In this manner the debility and weakness are nourished; though it is now rather time to repair the previous faults of education, and to harden the body. This hardening costs at first some labour. It is a cure which cannot be effected without certain sacrifices and disagreeable sensations; but it is the only method to restore health, and prevent debility during life. Attention, however, must be paid to the state of the vital principle and the organization. Provided the child is not too much weakened, and if the organic parts are not already injured, we may venture much farther, and proceed sooner to changes in regard to air and nourishment. In general, the whole previous perverted education must be changed, and a more consistent and uniform mode of treatment must be followed. We must not undertake single improvements, which, on account of their not corresponding with the other debilitating treatment, would be prejudicial; but the whole mode of life must be changed and improved. Of what use is it to turn out a delicate child barefooted among the snow, if at other times it be kept in a nursery filled with warm vapours?

§ 499.

Care must be taken not to fall into the other extreme, by following too cold a mode of treatment, &c. The transition to the strengthening hardening mode of education must be made gradually, and with constant attention to the existing powers.

## § 500.

The chief point is to guard against the previous debilitating causes. It is a common but a mistaken notion, that every thing is to be expected from direct corroborants, such as the cold bath, wine, rich soups, strengthening medicines, and at the same time to neglect removing the causes which alone would effect a cure. A transition to a more healthful mode of life will alone restore the lost powers. The fear that weak children would not endure straining and exercise of the powers necessary for that purpose is totally groundless. The poorest and most debilitated children become sound and active when they learn some trade connected with motion and exercise of the bodily powers.

## § 501.

The strengthening method must, as far as possible, be free from all constraint. A certain natural, well ordered freedom, allowed to children during their gymnastic exercises, in regard to bodily labour, and bearing heat and cold, will promote this end imperceptibly, which will be supported also by example, and that emulation excited in the society of childish life.

## § 502.

One thing in particular, which requires improvement, is the mode of feeding children hitherto employed, and which is a principal cause for maintaining their debility. A child which comes into the world feeble has the more need of being nourished

by a sound mother or nurse ; for the weakest digestive power can bear milk drawn immediately from the breast. On the other hand, it is absolutely necessary, if the mother or nurse is unsound, attacked with any chronic disease, or highly irritable, and subject to violent passions, that the child should be removed from her. Care also must be taken to provide the child with good sound nourishment, which however must be given in moderation. Animal food and wine are only relative corroborants. In all cases of feebleness there is great irritability, which must be excited and maintained in a moderate degree, but which by a relative excess of stimulus becomes highly pernicious. Wine may be considered as a medicine for feeble children, and when given in moderation promotes digestion, prevents the accumulation of worms, and excites a greater activity of the vital principle ; but brandy and other spirituous liquors are poison to them. Animal food is nourishing, but in a relative excess too irritating. Children fed merely with animal food acquire a blooming appearance, and are full of blood, but irritability and an inflammatory diathesis are thereby immoderately increased, and indirect debility is excited. They are readily attacked by inflammatory diseases, are liable to a putrid solution of the juices, and often die suddenly when such an event is not expected. Animal food, however, is an excellent strengthener of feeble children, when the following rules are observed: 1. To give animal food as an addition to vegetables, in order to improve their acidifying quality. 2. To give children before they have teethed only sometimes a little meat soup, freed from all fat.

The best nourishment for feeble children is MILK. I have seen exceedingly weak exhausted children recover their strength merely by drinking milk every day. The milk is much better when taken immediately from the animal. If it can be drunk the moment after it has been milked, it is far preferable. I once saw a child of a year old, exceedingly weakened, and reduced almost to a skeleton, which voided all its food undigested, had a swelled belly, and screamed continually, restored to health by carrying it several times a day, at certain hours, to the cow-stall, and suffering it to drink milk from the vessel into which it had been milked. To prevent the milk from growing cold, it was previously warmed, and then kept immersed in hot water. As this kind of nourishment was at last too fattening for the child, I ordered a portion of boiled water to be poured into the milk, warm as it came from the cow.

When milk cannot be obtained in this manner, give the child to drink a mixture of milk and water, which has been gently boiled. The milk, however, must not be boiled too much, but only parboiled, else it will lose its best parts.

An excellent kind of nourishment is sweet whey prepared according to HUFELAND's prescription.\* It contains the nourishing volatile parts of the milk without the smallest portion of acid. In consumptive diseases, and diseases where no other nourishment can be endured, I have saved the lives of children for several weeks by these means.

BEER is nourishing and strengthening for feeble children, but it must neither be too strong nor too much

\* Bemerkungen über die blattern um Weimar. 1793. p. 354.

much hopped. Hildebrand\* recommends good beer soup, prepared with the yolks of eggs, for breakfast. The beer must be a good vinous sort: bitter beer when boiled has an unpleasant taste. The yolks of eggs must be carefully mixed, that they may not curdle.

§ 503.

The powers, if not put into ACTIVITY, become relaxed. Children have naturally a great propensity to motion and activity; a great deal is done when this natural propensity is not checked, but it must be properly directed to call forth the powers by exercise. It is a capital fault in education, that in regard to girls so little care is taken to make the bodily powers expand. Dr. LETTSOM† complains, that in many seminaries of education near London, where the play grounds are too confined and not sufficiently airy, intermittent fevers and disorders of the breast are exceedingly common among the children, whereas in the country schools these diseases seldom occur, and not a single child dies in the course of several years. Bodily exercises for feeble children must be gradually increased, and they must be entirely free from the least constraint. It will be attended with the most advantage if they are performed in the open air.

§ 504.

CLEANLINESS is an excellent corroborant, the utility of which may be conceived from the importance of the organ of the skin. Dirtiness is often the sole cause

\* Hufeland's Journal der pract. heilk. III. part 1. 43.

† Hints respecting the Chlorosis of boarding-schools, London, 1795, p. 11.

cause of the continuance of debility. Is it possible that bathing and washing can be too much recommended? Children, in the first period of their age, ought to be bathed in tepid water, then in cool water, and when they have attained to the age of three or four, in cold, but not ice-cold, water. The observations already given in regard to bathing (§ 453.) may here serve as a guide. The cold bath has been recommended unconditionally as a corroborant for feeble children, and people, without reflecting on the painful sensation thereby occasioned, plunge them into ice-cold water. This is an unfortunate imitation of the English, to whom indeed, with their mode of life, heating and irritating nourishment, animal food and wine, the cold debilitating bath serves to carry off the immoderate irritability, and has a negative strengthening action. But how can this weakening remedy be employed in the direct debility of our children? The weaker children are, the less they can bear the cold bath, as we observe at the period of expansion in childhood or the time of teething, when many cannot endure even the cool bath.

## § 505.

The case is different in regard to speedy washing with cold water (§ 462.) where the cold acts merely as a stimulant; and yet when applied to feeble children it must be done only with cool water.

## § 506.

The powers of feeble children must not be too much strained by being lifted and carried, or by too early walking. By these means dislocations, fractures  
of

of the bones, and crookedness of the spine, may be easily occasioned. The general cause of deformity is debility of the solids, the great softness and pliability of the bones: accidental causes are external violence, falling from a height, an unnatural position of the body by sitting and standing crooked, or by lying obliquely in bed. Fractures readily arise from great relaxation of the solids and muscles.

## § 507.

The clothing of children must be wide and not too warm: furs and warm covering for the head are improper.

One great object of attention must be to provide for them an airy, clean sleeping apartment. Care must be taken not to irritate them or to put them in fear, by which they might be thrown into convulsions. On the other hand it will be necessary to promote youthful cheerfulness by company, the use of free air, and lively amusements. Nothing is more pernicious than to strain the mental powers of feeble children. The chief care, at this period, must be the body, that the organ of the soul may be preserved in a good condition.

## § 509.

It is often impossible to restore health to feeble children, but by sending them to the country, where they may enjoy free air the whole day, take proper exercise without restraint, and use a sound, unadulterated milk diet, &c.

## § 510.

The art of maintaining feeble life in childhood consists in a great measure in dætetie regimen, which must be supported by medical assistance. HUFELAND\* has given us excellent observations on the nature of childhood, and the peculiar progress of the diseases of children. The constitution of the period of childhood is, on the one hand, irritability unnaturally exalted, and on the other great relaxation and debility in the power of action of the organs. We observe, therefore, in that period, a disproportion between action and re-action. The organs are partly incomplete and imperfect in their conformation, and partly deficient in the necessary cohesion and density; individual organs are more or less completely formed than others; and yet nature is occupied in this business of conformation, and thence arises in some of the organs a particular accumulation of juices, a greater confluence of the power of formation, a particular irritability and sensibility. All these phenomena we find in the asthenic state in a very high degree, when to the natural debility of childhood there is added an excited artificial or accidental debility. This renders great care and attention necessary in the treatment of the diseases of children, I shall therefore endeavour to furnish a few hints for the treatment of the asthenia of childhood, and to point out those cases in which the treatment ought to be different.

The unnaturally exalted irritability must be lowered, without weakening, at the same time, the power of action in the organs, and therefore mild, emollient means for children are to be preferred. The best are

\* Bemerkungen über die blattern um Weimar. p. 292.



milk and mucilages, as nothing tends more to repair the great waste of the nourishing parts and the loss of the fluids, occasioned by the great activity of excretion and secretion; nothing also is more proper for moderating the acridity of the juices which thence arises. These means accomplish the end much better than the narcotic, as they strengthen rather than injure the debilitated organic parts. But where the irritability is extremely violent, the latter are indispensably necessary, in order that by a greater stimulus the weaker existing stimulus may be suppressed. But of these the milder and weaker are to be preferred to the real opiates. They may be combined very properly with softening, gelatinous, oily medicines, by which their prejudicial action on the organization is prevented. They may be employed also internally in injections and fomentations with more certainty of effect than internally, and their operations may be seconded by the tepid bath and means proper for producing a derivation, &c. For internal use therefore, camomile, valerian, musk, flowers of zink, and saffron, are the fittest.

The doses of these medicines for children must be adjusted with great accuracy. In large doses, or when long continued narcotic medicines occasion stupefaction, hebetude, apoplectic affections, loss of memory, and idiotism. It is exceedingly difficult to determine exactly the proper quantity. In certain cases the physician must be guided by experience and his own sagacity.

Care must be taken also to maintain the necessary activity of the vital principle, and a good state of the organic parts. In children, the vital principle is weakened

weakened in a very high degree; its activity is confined, and the organic parts are easily injured. Now to guard against the total departure of the vital principle, every thing that tends to weaken it must be avoided. Strong laxatives and emetics, and long continued evacuation, are on this account much to be dreaded, though sometimes, on another account, as shall be shewn hereafter, they are requisite at this period. They must not be employed in such quantity as to weaken the vital principle or injure the organic parts themselves, but merely with a view to remove the impediments to the free activity of the vital principle. They must never be employed in such a degree as to produce exhaustion: to guard against this bad effect corroborants must occasionally be applied.

## § 511.

The application of stimulants and corroborants is particularly proper for childhood. By these means we endeavour to support the activity of the vital principle. In children, a greater activity of this principle is required to maintain the business of absorption, reformation, and nutrition. Obstructions, congestions, deranged formation of organic parts, cachexies, rheumatism, and glandular swellings, never take place more readily than in children when this activity is impeded. For this reason they are so much benefited by warmth, which, however, must never be carried too far; and hence the sudden application of the stimulus of cold, washing with cool water, is so strengthening. Among the corroborants are cinchona, wine, bitter extract. The use of these direct corroborants must be confined merely to those cases when they are required

required by the weakened state of the vital principle. Nutritive means are also in the asthenia of children absolutely necessary.

§ 512.

On account of the unequal activity of the vital principle, and the so different states of individual organs, means which increase or lessen the activity in individual organs are of great utility; and hence local means, and such as produce a derivation, vesicatories, and cataplasms of mustard, are so effectual to lessen the exalted irritability of the suffering organs, by exalting that of remote organs in consequence of their consensus. Hence also the utility of external corroborants, fomentations of cinchona, washing with wine, and particularly the bath.

§ 513.

The viscidities in children, on account of the relaxation of the solids, and particularly of the intestinal canal, deserve no less attention as an impediment to the activity of the vital principle, and as the cause of lesion in the organic parts. We must endeavour to remove them.

1. By throwing out the gastric impurities. We must here pay attention chiefly to the excitement, and the derivation thereby effected, but no less also to the evacuation of noxious matter, prejudicial by its corruption, which communicates noxious parts to the juices, and even by its acridity attacks the solids.

2. By exciting a greater activity of the vital principle, partly in order to strengthen the organization, and give more activity to excretion and secretion, and  
partly

partly to guard against the farther accumulation of crudities. By these means, the necessary evacuation of foreign matter, which could not be effected by the strongest detergents, will take place of itself. But we shall do wrong if we attempt to accomplish this end merely by stimulants and corroborants; both indications must be united.

## II. TREATMENT OF THE ASTHENIA OF OLD AGE.

### § 514.

Old age is of itself a state of debility and feebleness. The vital principle is not only confined in its activity, but is also deficient, and the organization has become unfit for the purposes of life. This state would soon conduct to the grave were not the consumption of the vital principle less in old age. It is possible to support sinking nature by means of art, and to prolong feeble life in this period. Socrates compared old people to drooping plants; they are refreshed by dew, but violent rain promotes their speedy decay.

Old people must avoid violent mental affections; great and overstrained activity of the powers of the soul: their greatest enemy is cold. All sudden changes, abrupt transitions from one extreme to another, and all changes which make no impression at another period of life, are pernicious. Violent exercise fatigues and exhausts their powers; all strong stimulants excite an irritability that debilitates the vital principle, by which their life is shortened; though their general sensation for common stimulants is blunted as soon as these stimulants are perceived by them, they exercise an action exceedingly violent. They are much weakened by evacuations through the skin,  
or

or return if they are disproportioned to their powers ; but nothing is more pernicious to old people than violent bleeding.

Warmth is the element of old age. The more natural, internal heat is deficient, the more must this want be supplied and preserved by external calefacients. Warm clothing, a warmer climate, and a warm apartment to reside in, are the more beneficial to old people, as they shew a desire for them.

Old age requires REST, moderate activity, and lessened exercise of the powers. A certain activity, however, especially if people have been accustomed to it in their youth, is, in feeble age, a mean of prolonging life, were it only the use of the spiritual or bodily powers, but no fatiguing oppressive labour must be undertaken. The increasing aridity and hardness of the fibres must, as far as possible, be lessened by emollients\* ; and hence the great benefit of the tepid bath and unction already recommended. Moderate stimulants are required to maintain the activity of the vital principle, because with the decrease of this activity, the susceptibility of the organization for life is gradually lost ; hence, wine is so salutary for old people. To maintain the powers and strengthen the body is the principal object ; and this object will be accomplished by choice, digestible, juicy food, meat soups, broth, &c. Milk affords excellent nourishment for old people. Human milk, drawn im-

\* Senectutis marcorem impossibile est solvere, juvari autem ut in longum differatur potest, et hæc quidem fomenta senibus parans medicinæ pars illa est quæ scopum habet sistere et cohibere quantum possibile, ne deficiatur corpus cordis in tantum ut laborare desinat, *Galenus de Morafimo.*

mediately from the breast; and in the next place, asses milk, or milk in general, if drank when newly milked (§ 411). It is of importance also to maintain cheerfulness; a placid agreeable frame of mind, pleasing hope and joy, a retrospective view of the past, and sweet care for the future, are the means of enlivening old age; also the company of young persons, attention to children, by whom old people are so naturally attracted, and in particular the society of young females, who, as some pretend, have a physical influence over old age. The sleeping of old persons with young women, prescribed by some as the means of prolonging life, we do not recommend, and wish to confine their intercourse merely to conversation.

From what has been said, we may easily deduce those indications which the art of the physician requires for maintaining feeble life in old age. The healing art, as applicable to old age, depends on the same principles as the treatment of children, viz. maintaining the powers by gentle stimulating and strengthening means; guarding against every thing that strains or exhausts; softening the dry rigid fibres; producing a derivation of the congestions in individual parts; the application of local stimulants; and, in particular, attention to preserve a good state of the organ of the skin, and of the stomach, &c.

The state of feeble old age is compared to that of convalescents, after severe diseases; and, therefore, an illustration of these different points will be found under that head.

III. TREATMENT OF ASTHENIA AFTER DISEASES.

§ 515.

The object here is not so much to effect a direct restoration of the lost health, as to render this state less dangerous for the duration of life; and, therefore, under the debility which follows disease we comprehend both an approach to health, or convalescence, and an increasing deviation from health. We must here take into consideration the previous disease still existing, though in a less degree; its nature and duration; how far it affects the vital principle, or the organization; whether it be sthenic or asthenic; what organs have particularly suffered, &c. We must attend also to the constitution of the patient; the strength or weakness of his body; and also to his condition in the sound state. We must enquire what the diseases were with which he was before attacked; whether they were cured radically, or merely suspended by palliatives; under what circumstances and relations the patient lived; what trade or occupation he followed, &c. When we have examined these and several other circumstances, we may then form a real idea of the existing asthenia. The debility which remains after disease is properly prolonged disease, and requires the greatest attention to guard against a relapse, or to extirpate the remaining morbid diathesis. The depressed state of the powers renders the application of the strengthening method necessary; where this is neglected, remains of the disease are still left behind, the equilibrium of the powers which has been deranged is not completely restored, and obstructions will be the consequence. Individual organs, which

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have

have been chiefly weakened by the disease, will form receptacles for new maladies; they will afterwards be chiefly attacked when any new disease takes place, and their feeble state will have the worst influence on the whole organization. Hence so many affections of the stomach, and of the organ of the skin, after diseases which have been imperfectly cured.

But however necessary it may be to strengthen the vital principle, and the organization after diseases; to put the one into moderate activity, by animating means and stimulants, and to give the other, by corroborants, more coherence, and a better mixture of component parts, the stimulating, strengthening method, if employed unconditionally and in excess, is pernicious. In that case it exalts the irritability in an immoderate degree; hastens, by these means, vital consumption; and even, by immoderate activity, injures the organs, (§ 232—§ 362—§ 398). The immoderate irritability ends in hebetude and insensibility, and the consequence is lameness of the organs, and sometimes incurable maladies. Let us now only reflect on the improper application of narcotics, opiates, heating essences, wine and brandy, especially when used to excess after diseases. In vain shall we expect strength from them; the consequences will rather be derangement of the crises, inflammation of the stomach or lungs, congestions of the blood in the head, and therefore apoplectic affections.

The whole art of treating asthenia after diseases consists in endeavouring to maintain a moderate degree of the activity of the vital principle; now so far as the object in view requires, stimulants and corroborants must be applied; but at the same time all impedimenta



pediments to the activity of the vital principle must be removed, whether arising from an excess or deficiency of excitement. Expelling foreign pernicious matter from the body belongs to the same head ; and hence, in many cases, the necessity of evacuation.

But when nature or the vital principle is not sufficiently active of itself to remove these impediments, and to expel crudities, &c. it must be assisted by proportionate stimulants and corroborants, without which it would always be hazardous to employ even the necessary evacuants.

Medicines employed to expel crudities will be far more effectual, and in much smaller doses, if the activity of the vital principle has been excited to promote their critical operation. Sometimes this critical evacuation of foreign matter takes place by vomiting, stool, or perspiration, merely by exciting the activity of the vital principle. The long wished-for evacuation, by stool, or through the skin, will be accomplished when the spasmodic affection, which kept back, as it were, and confined the noxious matter, is removed. But it must not be imagined that this end can always be obtained merely by the action of stimulants on the vital principle.

Let it be our chief care to maintain the vital principle in those debilitated by disease, and to prevent its consumption : we must consequently guard against immoderate stimulants, and every thing that depresses the activity of the vital principle below that degree which is necessary for maintaining life. Nothing, therefore, can be more pernicious, after diseases, than violent evacuation, excessive bleeding, &c. except in the case when it serves to remove impediments to vital activity.

it is a mistaken notion that people must conclude every disease with evacuation, either upwards or downwards, as for the most part moderate corroborants might be applied with much greater propriety.

Diseases leave behind them immoderate sensibility and irritability, so that patients are affected in the most violent manner by stimulants, by every thing that excites mental emotion, and by small doses of stimulating medicines; and on that account they are in continual danger of a relapse. To lessen this evil ought, therefore, to be one of the principal objects of the physician. This may be done by mild sedatives, among which the warm bath deserves the first rank. To this head belong also vegetable mucilages, milk drawn immediately from the breast, sweet whey, thin meat soups free from fat, &c. Also moderate exercise, exhilarating the mind, the use of open, pure, dry and moderately warm air. It will be necessary, above all, to avoid violent stimulants, violent passions, agitation by overstrained exertion, highly seasoned food, and spirituous liquors.

Our attention must be chiefly directed to the state of the principal organs—the lungs, the stomach, and the skin.

We can, however, give only general prescriptions; for if we should venture to establish rules for individual cases, it is to be apprehended that we might be misunderstood. A great deal will depend on the method before employed when the disease was at its height, as from the consequences rules must be deduced for the treatment of the state of convalescence. If the debilitating method, bleeding, and abundance of evacuations, have been employed, more caution will be required

quired in the application of the strengthening method : only moderate and gradually increased doses of strengthening and stimulating means can be admitted. Such patients find themselves in the state of those who, after having been famished, kill themselves by a surfeit: The pernicious consequences of the usual mode, first to employ excessive evacuation, and then strong doses of cinchona, have been already shewn by Roschlaub\*.

The most important point is to take care that nature be not disturbed, and that the crises be not suppressed; that new affections and diseases be prevented; that the transition from one disease to another be carefully observed; and in particular, that salutary affections, which convey as it were the morbid matter to external parts, be not improperly treated. I hope I shall be pardoned for using the term SALUTARY: without admitting a peculiar salutary power in nature; may we not call out-breaking, or ulcers, or erysipelatous inflammation, under which a malignant fever disappears, relatively salutary?

#### TREATMENT OF THE INTERVALS OF DISEASES.

##### § 516.

The intermediate times or intervals in diseases, which make periodical pauses, are the more employed for strengthening feeble nature, as during the paroxysms the direct treatment cannot properly be applied. In these intervals, the greatest effect is to be expected from medicines, as the body is then properest for receiving them. But it is of great importance in this method to pay attention to the state of the powers.

\* Pathogenie, § 1200.

In the asthenic state, which exists in particular in the intervals of chronic diseases, and, in general, of all diseases that attack the vital principle, debilitating means would render the ensuing paroxysms worse, as they would destroy the resistance to the morbid irritation. Small deviations from the proper regimen, catching cold, getting wet, or overloading the stomach, readily call forth suppressed fever. Relapses are most to be apprehended in diseases which disappear suddenly and without good symptoms, and the sooner the return the greater the danger, as the natural powers are too much debilitated by the disease, as yet scarcely overcome. A single bleeding, or purgative, at an improper time, may change a regular tertian into a double tertian fever. Nature must rather be so far strengthened that the re-action of the vital principle may oppose sufficient resistance to the action of the disease. Should the activity of the vital principle be too much excited by the stimulating, strengthening method, it may readily be comprehended, that it arises from the vital principle being actually strengthened, and that it is not unnatural irritability excited by improper stimulants. The next attack of the disease, however, will be somewhat more violent, because a state approaching to sthenia has been produced by art, but the strengthened vital principle is now in a condition to overcome the disease; the patient will at least endure it better than where the vital principle is weak though the paroxysms be less violent; but the meroïd matter is not sufficiently prepared, consequently the equilibrium of the powers, which has been deranged, is not completely restored, and the evil remains in the body where it operates like a secret poison; the duration of the disease, therefore, is prolonged.

Now

NOW REAL VITAL STRENGTH, to which I have before called the reader's attention, must be restored; but to accomplish this requires great art. Particular attention must be paid to the impediments which prevent the activity of the vital principle. Stimulants must be combined with corroborants in that degree which is necessary for supporting the latter, and to give more impulse to the vital principle. Care must be taken not to confound great irritability, temporary, violent activity of the vital principle, especially when it is confined to individual organs (for example, immoderate activity of the organ of thought, or the organ of digestion) with real vital strength. But in treating the intervals of disease we must attend not only to the vital principle, but also to the organization, to protect it from injury, and strengthen the weakened fibres.

Our object here is not the art of healing, properly so called; we merely give an account of those processes which serve for maintaining feeble life. We must endeavour to employ the strengthening method in general, as well as to strengthen those organs which have been particularly weakened. Moderate exercise, warmth, wine, cinchona, bitters, ferruginous medicines, tepid strengthening baths, the power of which is increased by some addition, pure air, country life, electricity, &c. will serve for accomplishing the first object. All these, indeed, are means exceedingly different in their mode of action; but we here speak of their application in general. We may discover the proper time for this mode of application by observing the state of the vital principle. The state of the organization, whether the solids are dense or relaxed, shows

shews what class of means are proper; a cachectic or inflammatory diathesis, the lesion of organic parts, &c. also the circumstances and duration of the disease, the situation of the patients.

The more distant the attacks of the disease are from each other, bracing tonic medicines, such as cinchona, can be employed with more certainty; but the shorter the intervals the more stimulating means are necessary, to maintain the vital principle in that activity sufficient for overcoming the disease. Opium, wine in sufficient, and cinchona in very large doses, and particularly the uninterrupted use of these means, so that the effect of the first dose may be supported by the second, are proper for this purpose\*. But I must remind the reader that I here speak of the pure, direct asthenic state, in which the whole object is to strengthen the vital principle.

The real corroborants, applicable in the asthenic intervals, are those which, while they call forth the activity of the vital principle, strengthen the organization, and make it fit for being acted upon by that principle. Strong purgatives, and violent emetics, rather injure the organic parts, (especially when the intestinal canal is highly irritable; whereas where there is great abundance of viscid matter, strong doses of these medicines are sometimes necessary, and in particular to those who have used a great deal of farinaceous nourishment) untimely bleeding, especially if carried to excess, withdraws a part of the mass  
of

\* A remarkable circumstance relating to this point is mentioned by Kämpf, who unfortunately is now almost forgotten. See his *Abhandl. von einer neuen methode die hartnäckigsten krankh. zu heilen.* Leipzig, 1785; p. 119.

of the blood, which in asthma it is highly necessary to spare, and excites, besides a decomposition in the mixture of the juices, a change in the proportion of the fluids. On the other hand, nutritive means, meat soups, vegetable mucilages, repair the loss of the juices, increase the connection of the component parts themselves, and defend (as is the case in the flux in regard to the use of vegetable mucilages, salap root, &c.) the solids freed from their coating, the internal skin of the intestinal canal from lesion, and its consequences, inflammation, and gangrene. This may serve for illustrating what has been said.

We must strengthen, by LOCAL MEANS, those organs most attacked; such, for example, as the lungs, the stomach, the organ of the skin. As many diseases attack this organ at the same time, there is no better method than by strengthening it to defend the organization, in general, from the ravage of disease.

## CHAPTER VII.

## PROLONGING FEEBLE LIFE IN THE SO CALLED INCURABLE STATES.

## § 517.

WITHOUT farther enquiry respecting the relative meaning of the terms, curable and incurable, as applied to disease, (§ 13.) we shall consider certain states, where the physician can undertake nothing definitive; where it is impossible for him to attack the disease by the direct method, and where he accomplishes his object, if he can maintain life for a certain period, and lessen the most urgent painful affections. Under such circumstances, a radical cure cannot be effected, as the feeble life would be extinguished before the disease could be overcome. The empiric in many cases is successful, because a far greater sum of the vital principle, than what could be supposed from external signs, is often concealed in the body, and the regular practitioner who does not venture to employ such desperate remedies, may sometimes lose a patient of this kind; but in most cases, the latter by this moderate method, gains time to examine with more accuracy, the vital power, so that he can treat the disease in the direct method, with greater certainty; and by these means, instead of one patient, whom he innocently loses, saves a hundred whom the fool hardy empiric would have destroyed.

It



It requires a very high degree of acuteness, to establish a balance between the existing vital strength, and the activity of the means which lessen it in a certain degree; to determine this degree with the greatest probability, and, in general, to distinguish real from apparent debility.

Even in the highest degree of the most malignant diseases, it is improper for people to dwell too much on the idea of incurableness, lest all hope should be lost, which would discourage the physician, and make him overlook those means, different from the common practice, which might relieve his patient. Even those maladies which, according to theory and experience, must be declared incurable, we ought not always to consider as desperate. While we employ every means in our power for lessening the sufferings of the patient, the hope, though perhaps deceitful, of being able to remove them, and to maintain life, will assist us greatly in our exertions.

To maintain the vital principle in sufficient strength, is the chief object of the physician; but while we increase the activity of that principle by the exciting method, we must never neglect to attend to the impediments by which it is prevented from expanding itself. This observation will teach us, that we cannot always employ the stimulating method, and that even the gastric mode of treatment, notwithstanding the asthenic state, must SOMETIMES be combined with it. In employing the exciting method, we ascertain by observation, whether or not there is a deficiency of re-action or susceptibility of irritation; whether the vital principle is weakened or only oppressed. We must then take care, that irritability be not immoderately

rately increased, which would hasten the consumption of life; and that a concealed morbid predisposition be not called forth, or new diseases and affections be excited.

When life is feeble, every thing which increases this weakness must be avoided; such as great activity of the body or the mind, evacuation of every kind, and particularly bleeding, except in particular cases.

Such is the state which we have here to take into consideration. To remove the causes, may perhaps be impossible. We rejoice over every day, and every hour that we ward off death in such a helpless state; and we often see the impossibility of saving the patient. All that can be done, is to lessen the pain, and mitigate the most violent symptoms. This is the state of great age, when the powers begin to be lost under incurable marasmus; or in consumption, attended with ulcerated lungs, where organic lesion exists.

### § 518.

Nothing is a greater enemy to the maintenance of feeble life, than transitions from one extreme to another; laying aside old habits, leaving a climate or place to which one has been long accustomed. The irritation occasioned by great changes, is highly prejudicial to the debilitated. Even pernicious habits, insalubrious air, &c. must be abandoned with great caution. We must not be too ready to believe that we can in all cases cure debilitated patients, merely by removing them to a sounder climate, by suddenly purifying the air in their apartments, or by changing their mode of life: nay, great care ought rather to be taken that we do not thereby hasten their end.

(§ 475.) Unfortunate deception!—The physician is often tempted to subject his patients to such changes from which he expects a cure. He ought rather to maintain the hope of his patient, that he may thereby accomplish the object of his wishes.

§ 519.

In treating this state, we remark two principal indications: 1. To retard the consumption of the vital principle. 2. To mitigate the most urgent affections.

1. TO RETARD THE CONSUMPTION OF THE VITAL PRINCIPLE.

§ 520.

When we have it not in our power to stop the rolling wheel, we perhaps may be able to retard it, and to lessen its velocity. We cannot prevent the progress of the malady; but we may retard it, so that life will end later than it would have done, without the intervention of art; and this even is of some value.

§ 521.

1. WE MUST ENDEAVOUR TO LESSEN THE TOO GREAT ACTIVITY OF THE VITAL PRINCIPLE.

a) BY REST. (§ 488.) Many people may prolong their existence for several years, if they adopt a less active mode of life. Every thing that interrupts rest; every thing that gives too great stimulus to the body or the mind, must be removed. Thus in violent inflammatory diseases, where there is lesion of important organic parts, as for example, ulcerated lungs, rest and tranquillity are highly necessary.

b) By

(b) BY MEANS FOR LESSENING IMMODERATE IRRITABILITY. These means are either directly SEDATIVE OR TEND TO PROMOTE A DERIVATION. To the former belong the so called anti-spasmodics, the tepid bath, narcotic medicines, opiates. The use of these has been pointed out already. Among the latter are local stimulants, which by the greater irritability excited in some organs, lessen the irritability of others. (§ 394.)

### § 522.

2. WE MUST ENDEAVOUR TO MAINTAIN THE ACTIVITY OF THE VITAL PRINCIPLE IN THAT DEGREE WHICH IS NECESSARY FOR THE DURATION OF LIFE.

When the action of the vital principle is weak, the impediments to its activity still increase. On account of too weak resorption and absorption, crudities and foreign matters are more and more accumulated; the blood which is destitute of sufficient vitality, stagnates and forms congestions; the accumulated stagnant, and not sufficiently animated juices begin in part to die: their union is dissolved, and there arises corruption of every kind, and acridities as the first degree of corrupted fermentation has taken place. By the stimulus of the foreign matters or of the fluids, corrupted by the separation of their admixture, the solids also are attacked, and rupture of the internal skin of the intestinal canal, relaxation of the muscles, and fibres, &c. A change also takes place in the solids, according as the vital principle is more or less withdrawn from them. Such a state increases in proportion as the influence of the animating vital principle

ciple is lessened; the natural warmth disappears; the juices are dissolved; the soft and skinny parts are mechanically injured, and the whole organization is destroyed. When the body becomes unsusceptible of life, it is a dead mass. The transitions in this state are, in general, not sudden; these changes take place only by degrees. Though their progressive course can no longer be stopped, it is however sometimes possible by art to retard their progress. We must endeavour to retard the decrease of the vital principle in individual organs, and in particular to prevent, as long as possible, the unequal distribution of it, and even when this cannot be done, to maintain life at least in the principal organs for a certain period.

§ 523.

In general, the influence of the animating principle withdraws itself first from those external organs which are at a distance from the principal sources of life. The extremities become cold, and in particular the feet lose their muscular power, and power of motion; the activity of the organs of the skin decreases, and absorption and excretion by the vessels of the skin are carried on in a more sluggish manner. It is of great benefit, therefore, for old people to keep their feet warm; and on this account stimulants applied to the skin contribute so much to prolong life, as they excite the activity of the organ of the skin. Hence friction is an excellent mean for exciting and maintaining this activity. (§ 447.)

With the decrease of life, we observe a decrease of activity in the principal organs: the lungs, the stomach, and brain; shortness of breath, deficient digestion,

gestion, weakness of memory, from the vital principle being lessened in the organ of the soul. The causes of this state are indeed insuperable, when the organic parts themselves are injured, partly by mechanic lesion, and partly by loss of susceptibility for the vital principle; but we must endeavour to check, as far as possible, the progress of this mechanic lesion, partly by strengthening the vital principle, and partly by strengthening the organization. An instance of this is afforded by the decreasing animation of the organ of digestion. In that case we must give a smaller quantity of food; but for that reason, it must be gently stimulating and nutritive; the activity of digestion must be excited by moderate stimulants, and particularly wine.

## § 524.

When the vital principle in incurable diseases is unequally distributed, there arise, through the unfitness of individual organs for animation, obstructions, congestions, and in general a morbid irritability in those parts which contain a far greater quantity of the vital principle, by which means the corruption of one is communicated to another, and the still completely animated organs are consumed by too great irritability. We must therefore endeavour to keep life generally distributed throughout the body; to remove the debility of individual organs by tonics, and to disperse obstructions. We must endeavour also by the uniform action of external stimulants to maintain the general activity of the vital principle. To this head belong the means for maintaining and restoring the natural heat of the body.

## § 525.

We accomplish this end :

(a) BY A MODERATE EXERTION OF THE POWERS. For this reason HERODICUS by moderate bodily exercise was able to prolong several years the lives of debilitated persons. A moderate exertion of those organs which have lost in regard to the influence of the vital power will be the fittest for this purpose. This exercise, according to the nature of the existing powers, is either active or passive. The degree of the exertion must be proportioned to the existing powers ; it must never be carried so far as to fatigue and exhaust ; nor be continued too long, and must be lessened when it has effected a greater activity of the vital principle. The powers are by far too weak to endure for a long time the action of stimulants.

(b) BY MODERATE EXERTION OF THE POWERS IN INDIVIDUAL ORGANS. This increased activity excites, by means of the consensus, the general activity of life in the other organs. As for example, the activity excited in the organ of the soul by agreeable mental stimulants animates the whole organization ; the activity of the organs of the nerves, increased by nervous stimulants, wine, ether, &c. diffuses general life throughout the whole frame.

The happy influence of agreeable mental stimulants in regard to the prolongation of life, in all cases of debility, requires our particular attention. Cheerfulness and peace of mind ; the soft sensations of love, joy, and hope ; and the great life-prolonging power of the animating passions, belong to this head. It is not impossible by rousing these animating passions to prolong feeble life.

(c) BY THE APPLICATION OF EXTERNAL AND INTERNAL STIMULANTS TO THE ORGAN OF THE SKIN. As by these we increase the activity of the organs of the skin, we increase at the same time the activity of other organs. Hence the great action of stimulants on the skin; vesicatories, the cautery, friction, the application of external heat by warm bodies brought in contact with the skin. Internal means also have an action on the organ of the skin to increase perspiration, by which the natural warmth of the body is exalted, and its activity increased. The choice of these means depends on the state of the vital principle and the organization—I flatter myself, that by the preceding observations the reader will be enabled to determine in what cases heating or spirituous and antimonial medicines ought to be employed for promoting this end, and how far they may be combined with cooling or narcotic substances.

(d) BY EXALTING THE ACTIVITY OF SEVERAL ORGANS AT THE SAME TIME. For this purpose external and internal stimulants must be combined: moderate exercise and the use of wine, cutaneous stimulants and internal stimulants of the stomach.

### § 526.

In this case it will be most proper to increase the activity of the organs in proportion as it is more generally excited, and the less it increases irritability beyond the natural degree. No means are fitter for accomplishing what is here required than the general tepid bath, as it restores, in an eminent degree, the natural warmth of the body, and renders the activity of the vital principle general (§ 453.)



## § 527.

To maintain feeble life in the present state, it is particularly necessary to strengthen the chief organs of life; because to these organs the vital principle has the greatest attachment, and we are taught by experience, that men whose stomach or lungs are only in a tolerable good condition can drag out life for a long time, notwithstanding their asthenic state in other respects and the lesion of other organs. Of how much importance, therefore, to those afflicted with disease are cleanliness and pure air; how much depends on nourishment, &c.

## § 529.

In the highest state of debility life depends on external excitement, which must be increased beyond the usual degree; the insensibility is so great, that the usual action of internal powers is not able to put the vital principle into sufficient activity. In this state the preservation of life is merely the work of art. The perceptible activity of life often disappears at the moment when the action of artificial stimulants is suspended. Sometimes stimulants exceedingly violent are requisite to accomplish this end. In this high state of asthenia, where there is a deficiency of the vital principle, this principle itself may thereby be soon exhausted. Such violent stimulants, therefore, strictly speaking, are means which shorten life, and consequently counteract what we are endeavouring to accomplish; but as a life without activity, without enjoyment, may be considered as no life, the application of these violent stimulants may be admitted to

restore, at least for a short time, the full activity of life; for even this, were it only for a moment, may be useful to society. The reader may here call to mind the anecdote of Muley Moluch (§ 314.)

## § 530.

Among these violent stimulants we may include forced activity of the organ of the soul by means of the passions. Thus ardent love is said to have prolonged the life of a dying bride, till the appearance of the absent bridegroom; and when she beheld him, the excess of her joy enabled her to open her pale lips to address a few words to him, though she had been before totally incapable of speech. To this head belong also nervous stimulants. The lives of dying persons may be prolonged by wine, ether, musk, &c. External stimulants contribute towards the same end; as friction, vesicatories, bathing, and in general all the means used for exciting natural warmth.

## § 531.

Where there is great vital debility, the continuance of artificial stimulants is indispensable, because on these life depends (§ 377.) We must therefore maintain calefacients (§ 444.); and the external and internal excitement must be repeated in such a proportion, that when the action of one ceases, a new one may be applied. Now since with the still progressive decrease of the vital principle, susceptibility of irritation is more and more lost, the stimulants must be increased and exalted; the doses of wine or musk must be enlarged, the external heat increased, &c.

## § 532.

In various incurable states, the organic parts lose their coherence and due admixture ; their component parts are separated the more they are deprived of animating influence. There are two states of diseased organization : either a separation of the mixture and connection of the solids and fluids, relaxation and lessened elasticity and solution of the juices, or a deficiency of the fluids, desiccation, too great denseness and brittleness of the vessels.

In the first case we must employ bracing, tonic remedies. Cinchona in large doses, camphor and mineral acids, may here be employed with propriety ; also stimulants which by their astringent quality brace up the relaxed fibres and exalt the vital activity, in order that a certain retardation, at least, or a pause of the operation of the commencing animal fermentation or corruption, as far as such can be admitted in a living body, may be effected. Hence the beneficial effects of employing cold as a stimulant in putrid fevers. Fomentations of wine and other spirituous liquors are proper for accomplishing the same end. All these are means for maintaining feeble life in the state above described.

## § 533.

A different mode of treatment is required in the second state of diseased organization, whereby the lessened influence of the vital principle, desiccation of the body and rigidity of the fibres, still increase, by which the organization is rendered unfit for animation, as in old age. We must here endeavour to overcome

the evil by the emollient, moistening method. To this head belong tepid baths, warm fomentations, cataplasms of emollient herbs, moderate exercise, motion, rather of the passive kind, gentle friction, the moist vapour of warm fluids, the evaporation of animals newly killed, into the bodies of which the hardened parts are to be laid; the steam of warm bread, with which DEMOCRITUS procured a respite for his own life; the application of local emollients, such as oil and grease to the skin, or in the form of injections; the use of mild softening nourishment, milk, meat soups, vegetable mucilages, the internal use of fresh oil.

This state of the organization indicates that the activity of the vital principle on the organization is to be maintained, and admits stimulants not applicable in the first diseased state of the organization, because they promote solution of the juices. In the present case, therefore, vesicatories, electricity, &c. are proper. Also means for promoting a derivation: bathing the feet, the cautery, which in the former state increases sometimes the separation of the fluids, and consequently shortens life. This is the case in many kinds of dropsy, by the application of vesicatories, which sometimes produce a violent exhausting, evacuation of the fluids, which affords indeed a temporary relief, but shortens life. Thus nature, by the discharge of water from the feet, effects a derivation from the breast and upper parts of the body, which gives great relief to the patient. But this, in general, is the consequence of great solution of the juices, of relaxation and lesion in the fibres. Hence vesicatories  
in

in this state occasion the most violent inflammation, and in a short time even gangrene.

§ 534.

When the organic parts have suffered lesion, great caution is necessary in the application of this method, that injury may not be occasioned by excitement, and that the organization may not be weakened by lessening the necessary vital activity. In this state, every thing almost depends on the regimen. Sometimes no medicines can with certainty be applied, and nothing more can be done but to avert pernicious influences as much as possible, and to remove every thing that increases irritability.

Under organic lesion, in this state, we understand the destruction of organic parts; separation of their admixture or the loss of their substance. Instances of organic lesion are a high degree of inflammation, gangrene, caries of the bones, cancer, schirrous swellings; also the before mentioned case of the dropsy, where irritation by means of vesicatories is so pernicious. Under such circumstances the prolongation of life requires:

I. GENERAL TRANQUILLITY, peace of mind, a situation free from interruption, and the guarding against violent bodily motion. Hence in phthisis pneumonia, where one of the chief vital organs is exposed to destruction, violent motion is prejudicial, and tends to shorten life.

2. SEDATIVE, IRRITATION-LESSENING MEDICINES. These are employed different ways.

(a) GENERALLY, for lessening the immoderate irritability of the organization in general. By these means the great irritability, and the determination of the juices towards the injured organs is lessened.

(b) LOCALLY,

(*b*) **LOCALLY**, applied chiefly to the suffering organ. To this head, belong, in particular, external means, which in a high state of-asthenia are much more certain in their effect than internal. Who is not acquainted with the utility of opiates and mercurial remedies, applied externally for internal and external inflammation?

(*c*) **AS MEANS FOR PRODUCING A DERIVATION** applied on a remote organ in order to lessen thereby the too great irritability of the suffering organs. This is a method highly beneficial, and attended with great certainty. To this head belong bathing the feet, vesicatories, the cauter, friction. Stimulants may be applied in this manner, with great certainty, as by the irritability excited in other organs; that of the suffering organs is lessened.

### § 535.

An important method of lessening immoderate activity of the vital principle, particularly in individual organs, is **TO ENDEAVOUR TO GIVE TO THIS ACTIVITY MORE DIFFUSION, MORE ROOM FOR ACTING IN.** The greater the number of the organs which participate in this activity, the more extensive it acts, and the more it loses in regard to that pernicious intensive action, which gives reason to apprehend the destruction of the immoderately stimulated organ. This is particularly the case when such immoderate excitability relates to an organ highly sensible, and absolutely necessary for the duration of life; as for example, the lungs, the stomach; the consequences are inflammation, suppuration, decomposition of organic parts. This lessening of the intensive immoderate activity of the vital principle is effected.

(a) BY A GENERAL MODE OF TREATMENT: the application of the usual means for lessening irritability; air which contains less oxygen, the tepid bath, medicines that promote perspiration.

(b) BY EXCITING OTHER ORGANS by which the vital activity is more diffused. Vescicatories, therefore, are proper for this purpose.

According to this method immoderate activity of the organ of the soul is lessened by physical remedies; bathing, changed temperature of the air, exercise, &c. Immoderate activity excited in the organ of the soul by violent passions may be lessened by giving the passionate emotions more room to be diffused.

This practical indication may serve to illustrate the utility of stimulants applied to the organ of the skin, in order to effect a derivation of the noxious immoderate irritability of the interior organs to the external. In phthisis pneumonia therefore, during the whole disease vesicatories kept in a state of suppuration are of such benefit to lessen the cough and expectoration, and to promote sleep.

### § 536.

If the malady be incurable, we may contribute a great deal to the prolongation of life, by sparing and maintaining the powers as much as possible; by carefully guarding, on the one hand, against every thing that debilitates the powers, according to what has been already said, and by continually endeavouring on the other to repair what has been lost. It is sometimes, however, exceedingly difficult to effect this reparation, either on account of the great weakness of the vital principle, when assimilation and nutrition are consequently

quently carried on in a very weak manner, or on account of the organic lesion of organs destined for receiving and preparing the nourishment, as for example in the case of scirrhoties of the stomach or of a locked jaw. In these states we must endeavour to exalt the activity of the vital principle by stimulants, and thereby to promote assimilation and nutrition; or to remove the lesion of the organic parts, and, in the last place, to prepare the nutritive matter in such a manner that notwithstanding these impediments it may be received and assimilated in a certain measure, and when it cannot be introduced into the body in the usual manner, we may accomplish our object by various other methods (§ 482.)

## § 537.

AIR is a real *pabulum vitæ*, nourishing and strengthening (§ 53.) Nutritive matter is conveyed to us also through the atmosphere, and from this principle we may explain why animals without further nourishment can exist longer in one kind of air than in another. Too dry air, overcharged with caloric or oxygen, consumes quicker than moist air mixed with more hydrogen. It is hydrogen that contains the nutritive parts in the atmosphere. Plants may be preserved a long time in water without earth, and in moist air they may be kept fresh a considerable time, even when separated from their roots; whereas in dry hot air they would soon die. In the like manner during rainy weather they may be maintained fresh at the window, though a drop of rain does not touch them.

The result that may thence be drawn for our present purpose cannot be unimportant in regard to the air to  
which



which patients are exposed. In the most incurable diseases we may, by these means, contribute to prolong life, either by exposing the patient to air proper for him without doors, or causing him to inhale in his apartment an artificial gas of the same kind, with which the whole chamber may be filled. (§ 465.) In this process, attention must be paid to the principles already laid down. With this view the hydrogen may be increased, and according to the state of the irritability, whether deficient or in excess, may be mixed with more or less oxygen.

In many diseases this purpose perhaps might be answered by a machine, contrived for pouring out a considerable quantity of water, which would increase the oxygen of the air without injuring its purity. This process cannot be supplied by warm vapour, which indeed renders the air damp, but lessens its purity, is at the same time highly softening and relaxing, increases the heat and uneasy sensations, and calls forth too violent perspiration. How refreshing and animating, on the other hand, is the air in the neighbourhood of a water-fall. Cold water has the greatest tendency to purify the air. Neither can the place of this experiment be supplied by bathing, because the hydrogen in conjunction with the other component parts of atmospheric air exercises a totally different action on the surface of the body, and besides this is taken in by the lungs.

### § 538.

I shall here offer a few observations on the regimen of those means which have an influence on the imagination.

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The great influence of the power of thought on the physical part of man, and its connection, however inexplicable, with the vital principle, have been mentioned before, (§ 85. § 208.) also the consensus in which the organ of the soul stands with the other organs; and we know also of how great importance the free or unimpeded action of the powers of the soul, and even their deficient or higher cultivation, are in regard to the asthenic state. (§ 227. § 490.) On these observations we may found the method of maintaining feeble life by means which exercise an action on these higher powers. This psychologic method is founded both on our knowledge of man in general, and on observations on individuals respecting their passions, temperament, character, situation, connections, and relations, compared with their bodily state, and the manner in which they are affected by all these things. Here then is a strong thread by which the already half torn thread of life may be still maintained for a considerable time.

To tranquillise the mind, and suppress all violent passions, is the chief object to be attended to in the treatment of patients. The physician, however, must be acquainted with the peculiarities of his patients, as there are many in whom the most violent passions are excited by the most trifling things. The great activity excited in the organ of the soul by the violent impressions of passion, we must endeavour to lessen partly by moral and partly by physical means. We must give to the passionate emotions more diffusion; we must endeavour to direct the attention of the patient to other objects, to combine the existing passion with other ideas, which may lessen its impression. To  
change

change the existing ideas by others requires great caution: in a high degree of asthenia, in particular, the patient ought never to be subjected to such a direct method of cure.

In many cases it is of benefit merely to lessen the violence of the passion, and far better than to suppress it. A passion moderated in this manner is often the last anchor to which life adheres.

While we lessen the irritability of the organization by sedatives that occasion a derivation, we must at the same time lower the too exalted irritability of the organ of the soul, the consequence of which will be, that the action of mental stimulants will be less violent.

To maintain a certain activity of the soul is an excellent mean for prolonging life, and by which the vital principle will be kept longer in activity, and in sufficient activity, than by any other means. This activity tends more to promote life, when it has a certain object. Thus the life of old people is extended by their care for futurity, by building and collecting for their posterity. How many, even at the point of death, have been retained in life a considerable time, by an anxious desire of completing some particular business. The application of this circumstance to our present method is easy.

The chief point here depends on the activity of animating exertion; and therefore agreeable as well as disagreeable passions may contribute to maintain life as soon as the object of the passion interests the soul; that is to say, is capable of putting it into a certain degree of activity. Thus dying persons have been kept in life two days by revenge. We must not, however,

however, confound with these the depressing passions which lessen the activity of the soul: such as fear and care.

More beneficial to life are the agreeable animating passions, whether the object of their exertion be agreeable in itself, or have merely an individual agreeableness. How strongly is our existence supported, even under the greatest bodily debility, by the arm of hope. Avarice, without considering it in a moral point of view, is the cause of strong life to those who are actuated by it. It increases with increasing age, and enchains to the earth the last melancholy days of man. It is sufficiently strong to keep the soul in complete activity; and its action, the more exclusive it is, acts with the greater violence, and fixes life as it were, to one point, that is money. Those, therefore, who in such an asthenic state, as that now under consideration, should attempt by violent remedies to cure or suppress the passion of avarice, would pursue very bad means for prolonging the lives of their patients.

Passions which excite an agreeable activity of the soul, either by ideas of the present or of the future, serve in a particular manner to the prolongation of life. Joy and love are these guardian angels. These agreeable passions, however, must be excited in such a degree as not to be prejudicial to life; the transitions from the one to the other must be gentle, and attended with no agitation or surprise. Joy exercises a strengthening action, as it multiplies the stimuli on the organ of the soul; either exalts the mind by the placid transition from one idea to another, or by an alternation of moderate stimuli of different kinds maintains an activity void of all straining. Nothing can  
surpass

surpass the stimulant of love, in which so many agreeable passions are united. When it does not degenerate into extravagance, it gives employment to the soul, through a wide field of ideas; extends life through a hope of possessing the beloved object; and in the possession of it, gives it a new stimulus, while the wish for a longer continuation of these joys, tender attachment to the beloved object, and the habit of such a peaceful tranquil life in the circle of love and friendship, contribute greatly to the prolongation of our existence, and as it were detain us longer in this world of joy.

But even those passions which rise to enthusiasm, and which fill the mind with ardent and emulous zeal, provided the vital principle is not too much weakened, nor the organs irreparably injured, may, by their great excitement, overcome those impediments which confine vital activity, and thus effect a cure in the most obstinate diseases: of this we have sufficient instances. But when the vital principle is weakened and depressed, and the organs are irreparably injured, such violent excitement would put the principle of life into an incredible degree of activity, considering the state in other respects, so that the patients would perform the labours of power and strength, as in their sound days, but the vital principle would by these means be exhausted, and the end of life hastened.

The power of the human mind is great, and much may be effected by resolution in regard to the body. This resolution, however little man may be master of his own life, can contribute a great deal towards prolonging his existence. To this head belongs the resolution of submitting to disagreeable privation from

things prejudicial to life and health; to use unpleasant food; to endure painful operations, when necessary; to undertake, on purpose, tiresome mental labours; to struggle continually against impediments, and thus to harden both the mind and the body. It is a great point in the art of prolonging life, to become master of one's diseased sensations, by firmness and resolution\*. Men often shorten their lives by too delicate habits. In the incurable state, a respite for life may be expected by this resolution. It may be carried to a great extent, and by its means a man may often perform incredible things, though a little enthusiasm may be sometimes combined with it. We have instances of men, who fixed the period of their death at a certain time, and who died exactly at the day. Nay, we have instances of people who, on their death being foretold at a certain hour, believed in the prognostication, and actually fulfilled it. If men then would employ this superstition, so apt to forbode misfortune, for something good, and extend in idea the boundary of their life to a certain remote period, might not this be a mean for prolonging life?

How great is the confidence which patients sometimes place in the physician, in medicine, and the medical art in general? Strengthened by this confidence, many sufferings will be relieved. It is of great importance, when the patient is convinced that his physician will save him; or, if circumstances are such that a cure is impossible, that he will mitigate his sufferings, and maintain his life as long as possible.

A certain

\* Kant von der macht des gemüths durch den bloßen vorsatz seiner krankhaften gefühle meister zu seyn. in Hufeland's Journal, Vol. v. Part. 4.

A certain knowledge of his state, even if it should be unpleasant, is always better than an unsteady wavering mind, which promotes immoderate irritability, increases restlessness, wakefulness, and uneasiness, and by these means shortens feeble life. In many cases it is proper, even contrary to the appearance of circumstances, to assure the patient that he is in no danger, as it is in other cases, to assure him that he must die: both may tend to tranquillize the mind. A great deal, however, will depend on circumstances, and the state of the patient's mind. I have seen patients under the doubtful hope of life, soon worn out and exhausted; while others, in the same diseases, who were convinced that they were dying, dragged out their lives for a considerable time: the latter were tranquil and resigned to their fate; beheld the approach of death with a placid eye, and on that account, life was slowly consumed.

In the application of mental emotions, to prolonging feeble life, we must be guided by observing the state of the vital principle. In the case where there is an unnatural activity of the vital principle, and, therefore, immoderate irritability, whether it be general, or relates merely to individual organs, the mild, and even the depressing passions must be employed, because the above affections would be increased by violent mental emotions. In such cases, we must employ the agreeable, moderate mental stimulants of hope and joy, which must be incessantly maintained in the same degree. For even agreeable mental emotions, if too violent, would render such a state worse. The hope of life, which accompanies consumption, and still becomes stronger as the disease increases, seems to

hasten the patient's dissolution. This hastening is increased in proportion as the hope of life is nourished, and as the patient is flattered with the promise of a cure. It appears as if we ought to destroy hope, where it exists as a symptom of disease, and on the other hand, to endeavour to excite courage and hope, in diseases which are attended with depression and fear. Dr. Falconer, therefore, in his treatise on the influence of the passions in diseases, asks whether in the first attacks we might not substitute fear, in the room of hope, with advantage to the patient. Darwin\* relates a very remarkable case of a consumptive patient in confirmation of this idea.

In the other state, where there is a deficiency of the requisite vital activity, by which the duration of life is shortened through want of excitement, the lively passions must be employed; hope in its full activity; joy, and, in general, such emotions of the mind as excite a great activity of the powers of the imagination.

## II. MITIGATION OF THE MOST URGENT AFFECTIONS.

### § 539.

In such cases, when no radical cure can be attempted, great relief may be procured to the patient by mitigating the most urgent affections, and freeing him from pain and uneasiness. The exertions of the physician for this purpose will tend greatly to tranquillize the patient, and to inspire him with confidence. In most diseases, however, very little can be attempted, in regard to individual parts, against most affections, and

\* Zoonomia, Part II.



much less can they be entirely removed. Such a mode of cure, in general, would betray the utmost empiricism. But the attempt of the physician to free his patient from a painful affection is highly flattering to him; and by the application of the means for mitigating a certain uneasy sensation, he feels great relief were it only in imagination. Sometimes the physician has to remove some peculiarly dangerous symptom, before he can apply a general mode of cure. Sometimes the diseased state of some individual organ is so violent that the mitigation of it can prolong life. Sometimes the saving or at least respiting life for a certain period depends on removing the most urgent affections. In malignant fevers, the art of the physician can, in this manner, avert death, by preventing the return of a new attack. Opium, cinchona, musk, volatile salts, æther, and wine, are the most effectual remedies; also mental stimulants, by which the physician endeavours to carry the patient past the fatal period, and to suspend lethargy or cramp. In this period courage must be united with prudence; but a distinction must be made between real and apparent vital debility. While the physician is endeavouring to remove the most urgent affections, the real cause of the disease will often manifest itself to his observation. But the physician can never be too much cautioned against the empiric mode of cure which is employed merely in removing the symptoms, and which, for each attack, has in readiness a remedy. It is a most shameful degradation of the art; it bewilders our nosology with a number of diseases which are nothing else than individual symptoms; assigns to each a particular mode of cure; collects useless specifics, and de-

ceives by improper remedies, which indeed relieve at first individual affections, but leave the malady uncured, or rather prevent all possibility of a cure. By such a method we deviate far from nature; though simplicity, according to the great Boerhaave, is the seal of truth.

The patient unacquainted with the essence of the healing art, requires, indeed, a palliation for each symptom, under an idea that the disease has its seat exactly in those parts by which he suffers most. In vain does the physician endeavour to convince him that these individual symptoms are merely the consequence of the general morbid state, and that they will disappear in proportion as art is able to remove the general diseased state; that the real physician must not cure according to symptoms, but according to the causes; and that in this manner only it is possible to afford real relief, or to cure any individual sufferings. In such cases the physician may employ some harmless remedies for individual affections, in order to humour the patient, and give him a little consolation.

But there are many diseases where something may and must be done in regard to individual affections, provided the physician possesses practical acuteness and proceeds with caution. These palliatives may be employed with more certainty when one is acquainted with the causes and nature of the disease, so that the treatment may in every thing be agreeable to the general system of healing; such symptomatic remedies are required when an individual organ suffers in particular; but a great deal depends on the kind of medicine proper to be employed.

I shall

I shall here endeavour to give an account of the palliatives proper for being employed in a few of the most urgent cases, and which, when no radical cure is possible, may afford some relief, and therefore contribute not a little towards procuring a respite for life.

## § 540.

## PAIN.

Pain is either the consequence of too great irritability, or of a want of sufficient irritability. In the first case the pain is occasioned by inflammation; in the second it arises from a want of the necessary external excitement, a decrease of the usual warmth.

In case the pain arises from an excess of irritation, rest, stimulating a sound organ to effect a derivation, and the application of local cooling anti-inflammatory remedies, are to be recommended.

We must here carefully distinguish whether this excess of irritability, which occasions pain, takes place where there is actual vital strength (complete sthenia) or where there is vital debility (direct asthenia). In the first case, the so called debilitating means, according to the nature of the circumstances, bleeding and evacuations, are the only anodynes. In the latter, the means for lessening irritation must be applied more locally. We may here employ also narcotics, which by their preponderating excitement suppress the existing irritability, and at the same time exalt the powers.

In case the pain arises from want of excitement, it may be mitigated by endeavouring to apply the necessary stimulants. Such for example as heat, rest, nourishment; or habitual stimulants, as brandy to brandy-drinkers.

A deficiency of excitement may exist both where there is vital strength, and where there is vital debility. In the first case, the pain will soon be allayed by applying the stimulants which are wanting; but in the second, the method for restoring the deficient excitement must be longer continued, as on suspending it, the return of the pain becomes more violent. The pain of hunger, where only indirect debility exists, where the vital principle has not been much weakened by the continuance of this state, and before the organic parts are injured, will soon be allayed by the use of food. But in direct debility, where the vital principle has suffered, the organic parts, as is the case with the stomach from hunger, become injured; and therefore the application of food must be continued, gradually increasing the quantity, to remove the debility, and allay the pain entirely.

In the case of direct debility, the exciting powers may be considered as the best anodynes: wine, opium, Hoffman's anodyne spirit, may be employed for that purpose.

The general method of allaying pain is by exciting a general activity of the system to lessen, and, as it were, diffuse the irritability accumulated in individual organs. By these means the immoderate sensibility in the suffering parts decreases: we accomplish this end,

(a) BY GENERAL MEANS, which in the asthenic state increase the activity of the vital principle, and in the sthenic lessen it. To the first case belong the tepid bath, wine, opiates, friction, bodily exercise: to the second, the cold bath, detergents, bleeding.

(b) BY TOPICAL MEANS: In asthenic pain, warm fomentations, stimulants, vesicatories, friction; in sthenic pain, cold fomentations, topical bleeding.

(c) BY

(c) BY MEANS THAT PRODUCE A DERIVATION; exciting a greater activity in other organs in order to lessen the irritability of that which suffers. This can be effected in a very high degree by increased activity of the organs of thought.—A moderate pain may be lessened or allayed by distracting and varying the ideas, and by exhilarating the mind. But for allaying more violent pain, it will be necessary to excite fixed ideas, by which the sensation of the pain may be suppressed while the powers of the imagination are engrossed with other objects. Thus heroes in the field of battle forget the most painful wounds. By exciting the activity of the organs of digestion, pain of the head and teeth is sometimes palliatively moderated; as the moxa destroys the pain of the gout. The sensation of pain is lessened also by great muscular exertion, violent running, exercise, crying and lamentation.

From these observations on the treatment of pain, the physician may deduce rules for individual cases. He must never lose sight of the disease in general, and attend merely to removing the pain, without taking into consideration the causes. People, however, cannot be too much cautioned against the unconditional use of the so called anodyne remedies, and particularly opiates, in indirect debility. Even in small doses, they increase irritability; in larger doses, they oppress the existing irritability, but they often occasion congestions, rupture of the vessels, lethargy, and apoplectic affections. When they are long used in cases of returning pain, they occasion great insensibility in regard to stimulants, and the utmost debility.

## § 541.

## WAKEFULNESS.

This disagreeable symptom requires particular attention, when the general mode of cure cannot be applied to the disease, or though, when applied in the proper manner, it still continues as the consequence of too great irritability. The indication for removing this affection, is the same as that already given for removing pain.

Above all things, the causes of the want of sleep must be suppressed. They arise from the action of external things on the senses, uneasiness of mind, cramp, superabundance of blood, being kept too warm, costiveness. I shall not here repeat what I have said already on this subject, in another place. (§ 488.) The treatment of wakefulness depends on the general principles laid down in the preceding section. Soporifics, in general, are, bathing the feet, and bathing combined with friction; preserving the body open, by means of injections; the use of free air, moderate exercise, &c. In regard to opiates, they must be employed with great prudence. To determine the cases where they are applicable, would be tedious. In general, where there is great irritability, an inflammatory diathesis, and gastric impurities, they are hurtful. Sometimes they may be used with more effect, if applied externally. Friction on the region of the heart, with a mixture of a strong solution of emetic tartar and laudanum, may be employed.

§ 542.

LETHARGY.

The treatment of this affection must be regulated according to the causes. It may arise either from exhaustion of the powers, or from oppressed vital activity in individual organs; for example, accumulation of the blood in the brain, overloading the stomach. These impediments must be removed. In cases where impediments do not exist, and where there is rather direct debility, (real nervous weakness), animating, stimulating means may be employed, in order to restore the vital activity, as in the lethargic fever of old people. Wine, opiates\*, cinchona, and camphor, are here in their proper place. Recourse must be had also to means which may effect a derivation: bathing the feet, friction, and vesicatories.

§ 543.

HEAT.

Without attempting to explain the theory of heat, we shall merely give an account of the general means for lessening it. Here also, in the accomplishment of our object, we must be guided by the causes and the general state, or the particular affections of individual organs. Bathing, refrigerants, combined with means for exciting perspiration, frequent drinking, and maintaining the body open, are in this case the means proper to be employed.

§ 544.

\* Vogel's Handbuch, Part I. p. 159.

## § 544.

## IMMODERATE SWEATS.

First, to guard with great care against too much warmth, attention to the organ of the skin by cleanliness and bathing, exposure to cool but not cold air, and corroborants are the means to be employed. When the sweating is the consequence of exhaustion, we may use wine, mineral acids, and cinchona. But great care must be taken not to stop the sweating suddenly by cold, or to check it when it is critical.

## § 545.

## THIRST.

In the treatment of this affection, a distinction must be made between the two cases: that where the vital principle is deficient, and that where it is merely oppressed. In the first case, as in putrid or in malignant fevers, immoderate thirst may be removed by corroborants, wine, mineral acids, opium, and the warm bath. In the second, by gentle evacuants, saltpetre, spiritus mindereri, and in general refrigerants that promote perspiration, vegetable acids, &c.

## § 546.

## VOMITING.

Great care must be taken not to check vomiting, when it is an exertion of nature to free the body from foreign matter. In general, attention must be paid to the powers. It is only when violent vomiting is accompanied with direct debility, that we must endeavour



deavour to suppress it. This may be done by means which lessen the irritability, and those which exalt the too weak vital activity: wine, opium, calefacients, warm fomentations of wine or vinegar, the warm bath, vesicatories, or a decoction of mustard or ginger, which will stimulate sooner, applied to the region of the stomach. Sometimes vomiting arises from impurities in the stomach, in which case stimulating injections and detergents may be employed: if it proceeds from inflammation in the intestinal canal, as sometimes happens, bleeding, or leeches applied to the region of the stomach, may be of service.

§ 547.

DIARRHOEA.

Requires the like treatment as immoderate vomiting.

§ 548.

HÆMORRHAGE.

So far as it is symptomatic, mineral acids, opiates, bark, and ice-cold fomentations may be employed, according to the nature of the circumstances; and, to produce a derivation, vesicatories, and bathing the feet. Opiates, in cases of weakened vital activity, direct debility, deserve to be particularly recommended\*.

§ 549.

\* Murfinna über der krankheiten der Schwangern gebärenden, &c. Vol. I. p. 119.

## § 549.

## SHORTNESS OF BREATH.

If the cause be spasmodic, narcotic medicines, opium, hyosciamus, ipecachuana in small doses, and the warm bath may be employed: if there exists phlegm, resolvers, juice of squills, gum ammoniac, and small doses of antimonials may be administered as palliatives. Sometimes the affections are mitigated by the steam of vinegar inhaled into the lungs, or the steam of warm water, when the former is too stimulating; but in particular, by a decoction of pounded malt, honey, vinegar, and water, the vapour of which must be inhaled into the lungs. When the asthmatic attacks usually come on in the night, such medicines must be employed on going to bed, as preventatives. Both for relieving the fits, and as a preventative, friction of the hands and feet may be applied. Inspiring artificial kinds of air may also be of use. During the paroxysms, to bring the patient to a window, will afford some relief.

## § 550.

## PAIN IN MAKING URINE.

Emollient injections, fomentations of milk or water, applied to the parts affected, the half-bath, milk and water, milk of almonds, emollient mucilaginous decoctions, used internally, will be of service. The external means are friction, with a strong tincture of cantharides and laudanum, with warm oily substances, and in particular, with oil of hyosciamus.

These means are employed also for suppression of

urine; but the catheter must likewise be used without delaying too long.

§ 551.

SPASMODIC AFFECTIONS.

These arise from immoderate irritability in some of the organs, and may exist where the vital principle is merely oppressed, as well as where there is a deficiency of that principle. In the first case, evacuants, bleeding, the cold bath, and cold fomentations may be employed; in the second, opiates, the tepid bath, vesicatories, and antispasmodics. In general, we may use as palliatives, emollient, gentle, detergent injections, the tepid bath, and opiates, externally by friction, and internally by injections; the weaker narcotic means, camomile flowers, hyosciamus, flowers of zinc, valerian, &c. musk, castor. Great caution must be employed in regard to the internal use of opium. It can be admitted only in debility, properly so called, where there is an actual deficiency of the animating principle; but in this case, in sufficiently strong doses.

Among the crampish affections, may be included sneezing and the hiccup. I once knew an instance of sneezing bringing on death. In such cases, fomentations of warm milk are recommended, and to snuff up starch. For spasmodic hiccup, doses of opium, wine, and in particular flowers of zinc may be employed. If the cause be inflammation, vesicatories must be applied to the stomach, and softening mucilaginous decoctions given internally.

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